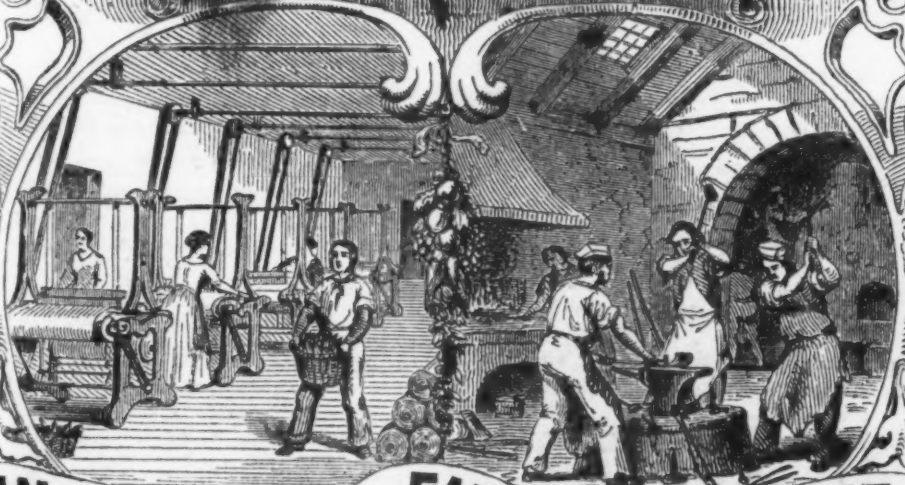
VOL X. NOV., 1857. No. 5.

THE PLOUGH

THE LOOM AND THE ANVIL.

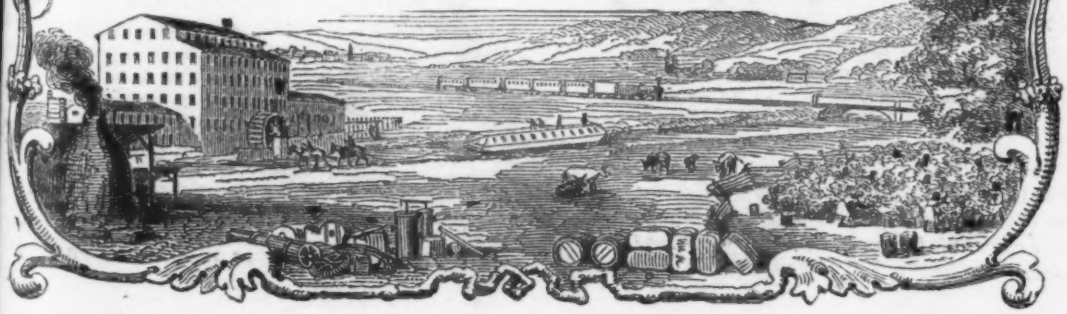


AN AMERICAN FARMERS' MAGAZINE

AND MECHANICS' GUIDE.

NEW-YORK: No. 7 BEEKMAN STREET.

J. A. NASH & M. P. PARISH, EDITORS & PUBLISHERS.



☞ **Suscribers who have not paid to the end of this year, will please b mindful of us. They do not feel the pressure, now so severe in large cities. Will all in arrears, remit something, without delay ?**

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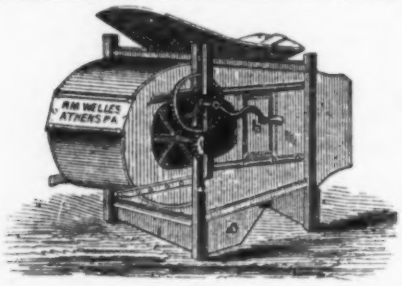

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OHIO MECHANICS' INSTITUTE
CINCINNATI, OHIO.

Fifteenth Exhibition of Art and Manufacture.

We desire to call the attention of Manufacturers, Mechanics, Artists, Inventors, and others, to the above Exhibition, which will be opened in Cincinnati on Thursday, September 10th, and continued daily until the 30th, in a commodious fire-proof building which has been erected for the purpose.

It is desirable that those intending to exhibit articles should give early notice to Mr. J. B. Heich, the Clerk of the Institute, who will promptly give any information that may be desired.

By order of the Committee,
Aug. 3t. C. F. WILSTACH, CHAIRMAN.

NEW-YORK CENTRAL RAILROAD.

On and after Monday, May 25th, Trains will run as follows:

GOING WEST.

Leave Albany.		Arr. Buff.	Arr. Susp. Br'g.
*6 30 A.M.,	(Exp.....8.00 P.M.	....	8.50 P.M.
7.30 "	(Exp.....7.50 "	....	8.30 "
9.15 "	(Mail..... "	....	
11.30 "	(Exp.....9.00 "	....	9.40 "
3.30 P.M.,	(Accom.....to Utica only.		
6 00 "	(Exp.....6 50 A.M.	....	6 50 A.M.
11.30 "	(Exp.....10.15 "	....	11.00 "

*Awaits at Rochester the arrival of 7.30 A.M. Train.

COMING EAST.

Leave Buffalo.		Leave Susp. Br'ge.	Arr. Albany.
5 40 A.M.,	(Exp.....5 45 A.M.	....	4.20 P.M.
8.30 "	(Exp.....7.30 "	....	8.00 "
6.00 P.M.,	(Exp.....6.00 P.M.	....	4.15 A.M.
11.15 "	(Exp.....11.15 "	....	8.45 "
	Accom. from Utica....		10 30 "

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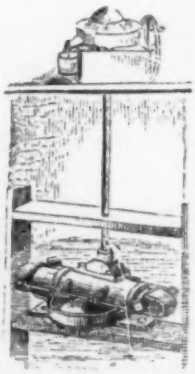

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56 JOHN STREET, N. Y.

AMERICAN FARMERS' MAGAZINE.

VOL. X. NOVEMBER, 1857. No. 5.

Division of Labor.

AT a recent fair of the "Hampshire, Hampden, and Franklin Agriculture Society," held at Northampton, Mass., the orator of the day Ex-Governor Everett, illustrated this subject by comparing Massachusetts now with what she was half a century ago; "Then," said he, "agriculture was almost the only element of our domestic industry. There were then only 15 cotton mills in the country, and not one item in ten now contained in our industrial statistics had an existence. Now we can show a million of dollars of our productive industry for every day in the year."

And so the workers of Massachusetts are paid a million a day for the toil of heads and hands. What a pity that her statistics do not run back fifty years. But we venture to say that they would show an annual industry of less than one-twentieth of the present. Think of the whole population grubbing among rocks and boulders, not more than half a million acres in the whole State fit to cultivate without costly improvements, and no capital to make improvements with; think of a glut of agricultural produce at that, everybody having a little of that commodity and nothing else to sell, and nobody wishing to buy it, because all grubbed for themselves in that time, and if they got any money, paid it for foreign productions; think of a farmer carrying his veal twenty miles to a little country town, selling it for 2½ cents a pound, and taking slazy India cotton at 5 cents a yard for pay; (we have seen that done within much less than fifty years;) think of the whole wealth of the State, consisting at that time of old brown school-houses, that could but just stand alone, in churches so ugly that the evil spirits certainly would not trouble the worshipers unless they

are devoid of all taste for architectural beauty, in agricultural implements that would make any decent horse laugh if he should see them now-a-days, and in land that, as things then were, was better to emigrate *from* than to immigrate to; and you have a pretty good view of what Massachusetts was fifty years ago.

Her people toiled prodigiously, and got little for it. Still they toil. It is their nature. Soil, climate, education, every conceivable influence, all conspire to make them work. But the difference is that now they get something for it. They earn a million a day. And what has made this change? Manufactures. Not that manufacturing labor is better paid than agricultural, but that agricultural labor is better rewarded when manufacturing is carried on in its neighborhood. In our humble opinion Massachusetts, and we ought to know something about her, is naturally the worst State in this Union for agricultural purposes. On the whole, we do not believe there is another spot on the globe, where, till the last fifty years, the people toiled as hard and got as little for it. The little, which the people scattered over the 5,000,000 hard acres of the State, earned in a summer, the Boston merchants were sure to take before the next spring. Enough was retained this side the Atlantic to make a few prince merchants in Boston, and the rest went to Europe to pay for doorlocks which wouldn't keep a rogue out, and sometimes wouldn't let the owner in, for log chains that wanted tinkering amazingly often, and for cotton shirting that wouldn't keep *a fellow* warm, nor always cover his nakedness very long.

Commerce had every thing in its own way, and its way was to take to itself about all the earnings of the people. Their system was essentially the free-trade system, and it cursed the people. They worked twice as hard as any planter in the Union would dare or wish to work his slaves, and for it had the pleasure of seeing the Boston merchant and the English manufacturer grow rich at their expense. Now the people of that State earn a million a day, and it does not quite all go straight to Boston, and thence to England.

Free trade principles, if fully carried out, would reduce the whole American people, spite of exhaustless resources, to just the position of Massachusetts people fifty years ago, all working at one calling, and all working more for the benefit of middle men than their own. That *plaguey* Indian cotton—the epithet is none too harsh—it makes us feel as if all the bed-bugs in creation were biting, to think of it—came to us by a very round-about course, just as commerce would like to have every thing come, that there may be a great many freights and a heap of profits.

Let us see how it worked. The girl in India that spun and wove

it, probably got one cent a yard for her work; the peddler who helped it along to Calcutta may have sold it there for two cents. The Calcutta merchant shipped at four cents, and the London merchant gave it a cant Americanwards at eight cts. The Boston merchant made on it just what he chose; the country merchant ditto, and the hard-working farmer paid fifty cts., and paid in agricultural produce dog cheap. For what the worker at one end got one cent, the worker at the other paid fifty, and half a dozen princely fortunes were being built up by the way.

That is free trade, nothing more nor less; no fancy sketch. It is just what was going on in Massachusetts less than fifty years ago, when the people couldn't earn a million a day, nor keep but the smallest fraction of what they did earn. If the majority want that state of things again, we must have it. The mighty resources of the country can not save us from it. You may shout "free trade" till you are hoarse, but if you will have it you are done for; mineral and agricultural resources never will be developed *profitably* by a nation that spurns manufactures. History has written this with a pen of iron. Theories about its being cheaper to buy than to make are idle nonsense in the presence of such testimony. The nation that pays its gold, or even its agricultural produce to any great extent for foreign manufactures, is doomed in advance, must be poor, however rich her soil or teeming her mines. Agriculture and manufactures, hand in hand, will enrich a state as poor in soil and mines as Massachusetts was fifty years ago, having nothing but ice and granite to export. Agriculture without manufactures, be the soil and mines ever so deep, or mountains of ore piled ever so high, will impoverish. Despise manufactures, let them languish and die among you, depend upon the industry of another country, or another State even, and that moment you give yourself over to a spirit of commerce, that never has treated and never will treat the worker in the soil fairly—a spirit that loves better to *make* money than to *earn* it, and that will be very contented if the Indian girl gets a cent for her cloth, for which the consumer pays 50 cents, provided it can pocket the difference. Our mothers fancied that the Indian cotton was nicer than the homespun linens of their day, because they paid a great deal for it; and we are not yet so much wiser than our ancestors, that we may not do as foolish things.

Let free trade have its way, and such a tornado as now sweeps over the land, cursing city and hamlet, making the poor poorer, and with some hateful exceptions the rich no richer, and destined to fall heavily upon all the true workers, will sweep over us once in ten or twelve

years, and in each case the longer it delays, the more withering force will it acquire to expend upon us.

On the other hand, let us have a revenue tariff, fully adequate to the wants of the government, with something to spare for the high purposes of national education and general improvements; let it discriminate slightly in favor of articles which advancing art among us would now enable us to produce with a little protection against half-paid labor abroad; and the sun never yet shown on such a country as ours will be fifty years hence. The history of Masssachusests for the last fifty years will be the history of the whole country for the next fifty, only that the half has not yet been told.

If Massachusetts, with a proper division of labor, from being what she was, has become what she is, what may not States a hundred fold richer in soils, and a thousand times richer in mines, become under the influence of a like system. We have no wish to glorify Massachusetts. She has faults enough, everybody knows. But we would hold her up to the gaze of the nation, in one point of view, and that is her union of manufactures with agriculture. Why, fifty years ago, all Massachusetts out of Boston, that is about half of the State—Boston being at that time the biggest half—could have been bought for four-and-sixpence, but for a childish attachment of the people to their own rocky hill tops and swampy dells. Then the workers could earn little and keep nothing. Now they earn a million a day, one dollar for every man, woman, and child, and keep a part of it. Then it was a blessed State to emigrate from. Now it would not be a bad State to immigrate to. Despite the hardness of the soil, agricultural capital pays as high a per cent., and agricultural labor receives as good a reward in that same little Massachusetts as in any other State in the Union; and from being the worst State, *agriculturally* considered, she is destined in another fifty years to be as good as any other.—Ed.

Hard Times.

No wonder. We have been importing half of all that we need, and more that we do not need, time out of mind, and the only wonder is that we have had hard times no sooner.

Such a system of governmental encouragement to American labor as James K. Polk commended when seeking the presidency, such as Zachary Taylor approved while on his way to that high office, and such as Henry Clay sighed for to the last day of life—a system by which Americans would pay Americans mostly for what they eat, drink and wear, instead of buying of foreigners, and which, while securing an ample revenue, should incidentally protect such branches of

industry as can be about as well prosecuted in this country as any other, but can not be inaugurated solely by private enterprise unaided —would have prevented all this.

Under such a system, every man, woman and child, not too feeble or too proud to work, would have had employment. Nobody would have been out of work; nobody out of money. There would have been to-day more workers and less speculators, fewer merchants and better, and a great many more honest men. It may seem boastful, but it is true nevertheless, that if the doctrines advocated by this Journal from its commencement had been heeded by the nation, there would be no revulsion, no prostration of credit, no loss of confidence—these ten banks failed yesterday, sixteen more gone to-day, all the rest going over, would not have been ringing in our ears, as they are. But, government and people, we have been acting like madmen—have sown the wind and are now reaping the whirlwind—and it is just about good enough for us. If the virtuous, industrious poor, those who have done as much to create our wealth as any others, but have not been *sharp* enough (how we hate the term) to get their part, were not going to suffer, we should hardly care for the rest.

Oh, but here is a rich merchant gone down! "He was worth eight millions." An honest man, who pursues a useful calling intelligently is worth more than eight millions. He is not to be estimated in dollars and cents. But the possession of eight millions, or one million, as the result of a few years' trade, is no certain proof that the holder is a richer man than the rest of us in any decent sense of that term. It comes much nearer proving that he is a greater thief. But here we are in the midst of a mighty crash; and if it turns out that the Shylock over his bags of gold is a god to be sought to in trouble, but sought to in vain, and the merchant who has stimulated our folly by his display of foreign silks and laces is more pitied than the real sufferers, it will be but the old thing over. Our abominably inflated credit system gives the sharpers untold advantages over the honest worker, and if the present crash makes us more cautious of gassy inflations it will not be without its good effects.

The fact is we have bought too much and manufactured too little. It is not true that if we buy a handkerchief for a belle in Broadway at $100, and pay for it in wheat at $1 a bushel, we are no poorer for it. Enough such exchanges would ruin the richest nation on the globe. Much less is it true that if we pay for gewgaws in California gold, we are no poorer for it. We are poorer at least by the amount that the gold diggers would have earned in other employments. If you build a substantial barn, worth $2500, the nation is richer by that sum; but if you were to dig gold the while, and then exchange it for what only

gratifies the mawkish folly of wishing to have something which other people as good as yourself can not get, who is the richer for it? or who the better? Nor is it true that if we purchase the real substantials of life and of national wealth and comfort, we are no worse off, even if we pay for them in our own produce. The producers of the two countries are too far from the consumer. They are, it is true, producers and consumers to each other, and so far so good, but are too far apart. Too many freights and quite too many profits are between.

Suppose England should make our ploughs and we should pay her in corn. Would that be good policy? Would the plough-maker get more for his work? Would the corn-grower get more for his corn? or would the intervening freights and profits take something out of both? The latter unquestionably, and it is so with everything. Commerce is necessary only because not all climes produce all that is desirable. It is good only as it promotes necessary exchanges, and is evil whenever it induces unnecessary exchanges, as if the English plough-maker and the American corn-grower should exchange commodities at arms' length instead of each trading with his own neighbors. The interests of both producer and consumer are safer in their own hands, whenever and wherever they can be brought together, than in middle hands. Commerce is always a toll upon the results of labor, paid by the producer, or consumer, or both. When necessary, by reason of the remoteness of these parties, it is to be submitted to as a necessary evil. But the sober matter of fact is, that more than half the so-called commerce of this age, is a made up affair for the benefit of somebody between the producer and the consumer. We not only trade too much with foreign nations, but we trade too much, or rather employ others to trade too much for us, among ourselves. Too many of us are practising to live by buying and selling, and not enough by producing. We prefer a big slice of what others have earned to earning something ourselves, to live by our wits rather than by our energies, to be *sharp* rather than industrious.

Now if the Congress at its next session, will lay aside its party bickerings for once, and consider what is due to the farmers and mechanics of this country in the way of legitimate protection to American industry, it can hardly fail to take a mighty step towards the prevention of such crashes as the present. In perfect consistency with our republican institutions, and with the eternal laws of right and justice between man and man, state and state, section and section, American industry may be fostered instead of being crushed, and we may become an *independent* nation in place of being as now the most dependent, with more wants, real or imaginary, that we can not ourselves supply, than any other people under heaven.

And if Congress will do its duty, let the people do theirs. Let about 500,000 of the runners, drummers, agents of all sorts and sizes, who are steaming people up to buy what they do not need and to sell what they ought not to part with, and swap away what they should keep, go to work. We see more every day, who are teasing for a place, where they can run up and down for a paltry commission, without hardening the inside of their hands, to whom we want to say, "Go into the woods, cut down a tree, hew it into some useful form and do the world some good; or let yourself to a son of Vulcan and learn to be a blacksmith; or to a son of Ceres and learn to be a farmer; or to some other master of an honorable calling, and learn to be independent, instead of hanging upon others for their shillings.

And then, if we can learn to work, it is more likely than not we shall learn not to spend so foolishly for what other nations manufacture. Here in New-York is a merchant (there are thousands such) who is *sharp;* yes, very sharp, sharp as a razor, sharp enough to cut all that come near him; prides himself upon being *shrewd;* shrewd is the term; he is not talented, but shrewd; and he has made a quarter of a million since the last "burst up" before the present. His sons are fast learning to be spendthrifts. His wife and daughters don't work, could'nt make a loaf of bread or a pie, nor order either made without an extra house-keeper to run between them and the Irish girls, who know more than both of them. They know how to sport foreign goods up and down Broadway, and that is about all. So we go—sweep our streets with amazingly expensive brooms, and no wonder there is a crisis, for surely the disease could'nt "get" much worse and the patient live.

Aye, if the government will favor American industry and the people will be industrious, and not senseless spendthrifts, we shall get on better.—Ed.

FOR THE AMERICAN FARMERS' MAGAZINE.

"Middle Men."

Messrs. Editors:—I have read Mr. Spencer's article in the October number of the *American Farmers' Magazine*, and your comments thereon. It seems to me a great mistake to attribute the *exploitation* of the producer and the consumer by the merchant to the rascality of individual merchants. The difficulty, I apprehend, will be found inherent in the entire system of exchanges—in the relation which exists between the producer and the exchanger.

Let us inquire a little into this, and try to throw some light upon this darkened subject. To go back for a moment to first principles, I

hold it to be an axiom, self-evident, needing no proof, that labor is the only legitimate source of wealth. Whoever produces, is entitled to the product; this right of course carries with it certain duties, which we all recognize, but which it does not come within the scope of my present purpose to discuss.

But the fact is that the accumulations of wealth constituting capital are found, not in the hands of the producer, but in those of a class called by various names, merchant, banker, speculator, etc., who devote themselves to the business of *accumulating* the wealth produced by others. These accumulators generally act, directly or indirectly, as distributors and exchangers of products, and contrive while so doing to retain in their possession a very considerable part of the articles exchanged. This per centage of other people's property which they are thus enabled to obtain, is called their PROFITS, and under the disguise of that little word all the wrong is effected. How do they make their profits? By buying cheap and selling dear, by thus getting a real for a fictitious value. And just so long as the producer SELLS his products to the merchant, just so long will the evil continue. It is necessary that there should be some mediation between the producer and the consumer, since society is too complicated to make it possible or desirable that the farmer should make his own tools, houses, clothing, and other necessaries or luxuries, or that he should directly exchange his products himself. For performing the labor required in making these exchanges the exchanger should receive a just and liberal compensation and no more. He should act as the *servant* of the producer and the consumer, exchanging for their benefit the goods of one for an equal cost of the goods of another, but not buying on his own account or owning any of the goods he exchanges. As certainly as the trader *buys* and *owns* the goods he will manage to get more than a fair compensation for his labor.

This business of PROFITS, that is, of gambling, or getting something for nothing, also leads to the evil of ten men being employed in making exchanges where one or two would be ample to do all the necessary work. If there were no *profits* to be made, only compensation to be received for *labor*, no more would be anxious to go into that business than could find actual work needed to be done.

Whereas now, the producer has to support at least five (more likely ten) times as many exchangers and spoliators as would be necessary for the transaction of the business, who rush into it hoping to accumulate wealth without producing it, or to live better than their neighbors with less labor. Brain work is honorable and entitled to fair pay when usefully directed, as for example, to secure the proper adapta-

tion of supply to demand for the good of all; but brain work directed simply to making PROFITS is not honorable.

If farmers then wish to enjoy the results of their labors, they should employ exchangers to sell their products for their benefit. They should not undertake to sell their own goods to a "middle man," who in turn is to sell them for his benefit at the largest advance he can get, and who, devoting his whole energies to the business of buying and selling, is sure to be more than a match in sharpness for the farmer.

I know it is not easy to effect a complete and thorough reform in the whole system of trade—it is not possible to do it at once. In the first place farmers must take the pains to study the relations of man to man, must endeavor to ascertain what constitutes equity in exchanges, then the first step will be taken toward practically realizing justice. I know the difficulty of finding those who love equity enough to be willing to act for the producer, without trying to spoliate him, and who are both capable and honest; but there are those. The demand will never be long without the supply; that is a law of God. I have only given hints where volumes may be, and have been written, but if it leads any to search for the law of justice or equity between man and man, I shall be satisfied. F. S. CABOT.

FOR THE AMERICAN FARMERS' MAGAZINE.

Manures, and their General Application.

THE present is the season when farmers in general, and good farmers in particular, scrape up and remove all manures, and give them immediate application in top-dressing, or pile it for future use. How far either of the above ways of disposing of it, are pursued with the strict economy of good husbandry, we shall not attempt to decide. Our object, just now, is to tell of a course we have for several years adopted, and which we have found productive of very good results.

Our manure for next year's corn crop.—This is made up of such as remained and accumulated in the barn-yard through the summer, and is composed of the droppings of the animals and such other material as comes to hand for the purpose. We draw it to the ground where it is to be used the following year in September, and make it into a pile as nearly conical as possible. The object of this is, to keep it compact, and in a shape to shed rain, an object we consider as important in a manure-stack as in a hay-stack. In building our manure heap we have plaster at hand, and every three or four loads, (cords) we spread a coat of plaster over the whole, and when the stack is finished we give it a covering of plaster of the eighth of an inch in thickness, and here

we leave it until spring, to find it in a beautiful condition at planting time, for putting under the hill.

For top-dressing meadows, we spread the same kinds of manure evenly upon the surface, as near as we can before the fall rains, at the rate of four or five cords per acre. We then give a coat of plaster at the rate of fifty pounds (it looks small in quantity) per acre, in this case the two ingredients act together, are actually worth more than double the quantity of either would be if used separate.

The foregoing system of preparing and applying manures we have found to be a decided improvement. We believe it is generally admitted that the action of plaster (gypsum) is greatest on newly stocked or recently manured lands. This being so, the more the manure and plaster are incorporated the more each will help the other, and the greater benefits will result. When they are spread and sown on grass lands at the same time, then their action must be in close connection, and if put on when the rains of autumn come into their aid their effect will be early and strongly marked in the coming spring.

We might carry our experience one step further. When manures are to be applied as top-dressings, on grass lands, the quantity may be greatly increased without any material diminution of quality, by composting muck, or indeed almost any absorbent soil in the proportion of one half. Indeed, we have top-dressed by simply taking earth from the way-side, often removing the thin sod, and spreading it over meadow, in the same proportion we would other manures. If its fertilizing properties were not so great as guano, it possessed this quality, —it covered the exposed roots of grass and furnished them soil in which to throw new fibres and of course contributed to a more abundant future growth. Where manures are scarce, it is certainly worth trying. Yours truly, Wm. Bacon.

Richmond Oct. 4, 1857.

Improvement of Land by Drainage.

In every State in the Union are larger or smaller extents of land, unfit for cultivation and injurious to health by reason of stagnant water. Since 1849 the general government has ceded to the States some 50,000,000 of acres of swamp-land, with the idea that the States in which these lands lie might devise means for their reclamation to agricultural purposes, or at least take measures to abate their evil influences on the health of the people.

Over the whole Union, on the sea-coast, along the margin of rivers, on the steps of hill-sides, in mountain glens, in valleys and on flats, there are wet lands, useless for agriculture and injurious to health,

which are destined, beyond all question, to be reclaimed and to become the most productive and the most beautiful and healthy portions of the country. In this view the subject of drainage becomes one of great and general interest—of great interest because of the vast amount, productiveness and wealth involved, and of general interest, because nearly every land-holder has, *directly*, a work to do and a benefit to receive in this line, while, indirectly, all are to be benefitted by the increased productiveness and healthfulness of the country.

Lands requiring drainage may be divided into uplands and swamps, calling those uplands, without reference to actual height, whose surface is free of water, and those swamps whose surface is inundated a considerable part or the whole of the year. In this view of the subject we find uplands on the very sea-shore and swamp lands on mountain tops. When uplands require draining it is generally owing to an impervious subsoil alone, there being no want of an outfall for the water, nor higher lands around to prevent passing off freely.

On the drainage of uplands we propose to speak now, and on the reclamation of swamps at another time. But does upland require drainage? On this point we quote from the report of the committee on draining of the New-York State Agricultural Society for 1848. They say: "There is not one farm in seventy-five, in this State, but needs draining—yes, much draining—to bring it into high cultivation." They say further, "It will be conceded that no farmer ever raised a good crop of grain on wet ground, or on a field where pools of water become masses of ice in winter." The late Mr. Delafield said, "No man ever raised good wheat from a wet or moist subsoil." On land not prepared by underdraining, farming becomes too much a matter of chance, a sort of lottery in which you draw a prize if the season is just right for your land, but a blank if it is not; whereas if, instead of waiting for a season right for your land, you make your land right for any season, by plowing to a good depth and underdraining where necessary, then there are no blanks in the case. Every year returns you a crop, and farming becomes a matter, not of chance, but of calculation.

It is now as settled a point that *depth* of pulverized soil, so underdrained by nature or art, that no water will remain stagnant in it, is a security against injury from severe drouths, as that it is a guarantee against the bad influence of excessive rains. One foot of pulverized soil on a porous subsoil, whether the subsoil be such by nature or be made such by drainage, is as good an insurance against injury, to any great extent, from too much or too little rain, as any farmer ought to ask. If the subsoil is naturally so porous that no water will stand in it—a point easily decided by digging three or four feet after a long

rain—then the farmer has nothing to do but to mellow the surface for a foot in depth and to enrich it properly, to be more certain of a crop, be the season what it may, than we ever are that the banks, which give us their promises to pay, will redeem them; and farming becomes the surest business in which capital and labor can be invested. But if the subsoil, owing to clay, rock, or hard-pan, be impervious to water, it is just as unwise to keep on trying to cultivate it, without first preparing it for cultivation, as it would be to mow all day with a dull scythe, instead of first grinding it in the morning, and then grinding it as often as necessary through the day. Why grind the scythe? Is there not labor enough without this? Yes, but if you add the labor of grinding, your labor will avail you more as a whole. And just so it is with the labor of under-draining. If the subsoil is impervious the labor of under-draining, added to that of cultivating, will be more surely and better paid, as a whole, than that of cultivating without under-draining.

Under-draining *deepens the soil*, greatly increasing the amount of vegetable food that is made available to plants. It *allows of a more thorough pulverization*, thereby increasing the amount of soil with which the roots will come into contact. It *allows the water to circulate more freely*, to sink readily, and to be drawn upward again by capillary attraction as evaporation from the surface goes on, thus charging it with the soluble matters in the soil, to be brought to the roots by it, as plant food. It *prevents surface washing*, and thereby retains in the soil plant food that would otherwise be carried off, and preserves the field from being gullied into rude, unseemly forms. Streams of water should never be seen running from the barn-yard; because they carry off the strength of the manure; and for a like reason they should not be seen running from a richly-cultivated field. They dissolve and carry away the strength of the surface soil. It *lengthens the season*, making the ground warm earlier, keeping it warm all summer, forwarding the crops, and delaying in some small degree the autumn frosts, or if not actually delaying them, at least making them later relatively with the ripening of the crops. It *prevents freezing out* in winter, *warms the soil* in spring and summer, and *makes the crops earlier* out of the way of frost in autumn. Every one of these assertions could be backed up by sound, philosophical reasoning, if there were space; and what is more, every one of them, without exception, is sustained by the oft-related experience of the very best farmers in this and other countries.

But supposing that all who are not hopelessly behind the times are now convinced of the benefits of under-draining, let us inquire after

the best means, confining ourselves for the present to uplands, and leaving the reclamation of swamps for another occasion.

A stone drain, sides eight inches apart, with flat stones over them, making a culvert of about eight inches square, and then covered several inches deep with small stones, and filled above with earth, is a pretty good drain, and will operate well for a long time, provided the bottom be brought to a perfect grade before laying it, and provided also that no vermin be allowed to burrow about it and expose it to sudden gushes of water. But there are too many provisos and too many uncertainties for so expensive a drain—the most expensive, we believe, that has ever yet been proposed. It is one which we would recommend only in a case where there are round and flat stones in abundance for the culvert and pebbles for the filling up, all within a *stone's* throw of the ditch. This is an expensive drain for two reasons: 1. In order to lay it well the ditch has to be very wide, quite to the bottom, nearly doubling the labor of excavation above that of excavating for a tile drain. 2. The handling of such an amount of stones is expressive of labor. We would never resort to this mode of constructing a drain, unless we were willing to charge about all the labor of handling the stones to surface improvements in the immediate neighborhood of the drain. The carrying of so many stones a considerable distance would be hardly better policy than "carrying coals to Newcastle."

A pretty good drain is constructed by digging from three to four feet deep, filling up two feet with small stones, dumped in from the cart at random, and then covering with straw, bark, shavings, or salt hay, and filling to the surface with earth. Where a good fall can be obtained, and the adjacent grounds are full of pebbles to be got rid of at almost any expense of labor, it might be recommended. We would prefer this drain, on the whole, as costing less, and if rightly done, quite as reliable. The stones should be small, only from the size of a hen's egg to that of an ostrich, larger ones, if any, to be broken. In this case the ditch may be narrower. Six inches at the bottom would do well. Care should be taken so to even the stones that the earth will not fall in around them, and the bottom of the drain, previously to filling in with stones, should be brought very nearly to a regular grade, with a uniform descent from the upper end to the outfall. Indeed no drain which has not a very nearly uniform descent, can be relied upon to carry water long; for the steep runs will be very sure to lodge obstructions in those less steep, till the whole becomes ineffective.

Brush drains are better than nothing, and pretty effective and durable if made in the best manner, and may be recommended where

there are no stones to be disposed of, and the tiles can not be obtained without great expense for transportation. If resorted to, the butts of the brush should be laid upward, the work to be commenced at the outfall, after the manner of shingling, from the eaves upward, each bush drawn in a little as compared with the last, till the whole is finished, the ditch to be nearly filled, as they would settle on being covered with earth, to allow room for the plow above them.

Filling with poles laid parallel with each other; with rails, two laid a little apart, and a wide one over them, or if rail timber is so plenty as to be worth but little, six or eight rails thrown in at random and covered with earth, makes a tolerably good drain. We have seen such working well after many years, and we have often heard of their answering a good purpose for a quarter of a century or more, but we could not recommend them. It is manifest that a drain constructed of wood, in any form, whether of brush, poles, or split timber, would be more durable in cold grass-lands than in cultivated fields, because in the latter the air penetrates more freely, the soil becomes warmer, and the brush or timber would decay sooner. But we doubt whether it is good policy to construct such drains in any soil, unless where timber is a drug, stones scarce, and tiles can not be transported without great expense, and even then the farmer might be led to inquire whether he might not better procure a machine and make his own tiles.

Three strips of board, say four inches wide, nailed together in a triangular form, the ends fastened by nailing to a shorter strip, so as to be kept firmly in place, that the ends might match perfectly, would carry water well for a while, and if laid deeply in a cold soil would last many years. But we should think that there are few sections where true policy would permit the construction of such drains. "Circumstances," we know, "alter cases;" and every man is the best judge of the circumstances in his own case.

Where circumstances peculiar to a location, such as abundance of round and flat stones, that want to be sunk into a culvert drain to get rid of them; of pebble stones to be disposed of in a cheap way, as in a filled-in stone drain; of brush at hand, already cut, or to be cut in order to clear the land of them; or of timber so plenty as to be of little account—with these and perhaps some other exceptions, which may now escape us—the best way is, beyond all controversy, to lay the best tile drains, and in the long run it is the cheapest and pays best to lay them in the best possible manner. Let the excavations be from 3 to 4 feet deep, and if you set your own judgment at work, instead of waiting for some one to tell empyrically, to an inch, how deep to go, we think your drains will turn up nearer 4 than 3 feet; or if you bring the bottom to nearly an exact grade, which we would urge,

because we believe an uneven grade, now steep and then nearly level, to be the bane of all draining, it will happen that your drains will vary all the way from three to four feet, and in quite uneven surfaces, perhaps in some extreme points two and a half to five feet.

The sole tile is the best; that is, the tile which has the bottom or sole attached, moulded in one piece. Some have used collars. The collar is but a short piece of a larger tile, say 4 inches long when the tile itself is about 13 inches, so made that the ends of two tiles, at the place of joining, slide into the collar, and are held by it exactly end to end, so as not to be liable to be displaced in covering, or ever after to get out of place, by any possible heaving of the ground. In laying the tiles, even if collars are used, and especially if they are not, be careful to make them firm in their places, the ground under them to be made equally hard, so that one will not settle more than another, which can be effected with certainty only by making all so firm as not to settle at all. Too much care can not be given to the attainment of a regular descent, or rather ascent, as you will begin to lay them at the lower and not the upper end. *Laterally*, a line of tiles may curve, if the nature of the ground requires it. You might even run your drain in a semi-circle, especially if the collars be used, provided the shape of the field demanded it, which, however, would rarely if ever happen, it being quite attainable, in most cases, to make the drains perfectly straight, and this being decidedly the best way when practicable. We only say, that *laterally* you may give the drain a gentle curve, without serious injury if you regard that as desirable, but let them be straight, unless your ground presents a special reason for the curve. *Vertically*, the drain should not curve, but should descend by a regular gradation, whenever the face of the ground will permit.

With regard to distance of drains from each other, much depends upon the character of the soil and more on the depth. In a very clayey, tenacious soil, through which water passes with the greatest difficulty, they need to be near each other. Twenty feet in extreme cases would be far enough; and if the ground is to be cultivated in the highest manner, as in some branches of gardening it might be wise to put them but one rod. On soil but ordinarily impervious to water, depth takes the place of nearness, so that whether you lay the drains 2 feet deep and 33 feet apart, or 4 feet deep and 66 feet apart, nearly the same object is gained, a little more speedily perhaps by the first, but we think more durably and at less expense by the second.

Not only does a deep drain extend its influence more widely, but its cost we think must be less in proportion to the breadth of land affected by it. The deeper a drain the less likely is it to be made in-

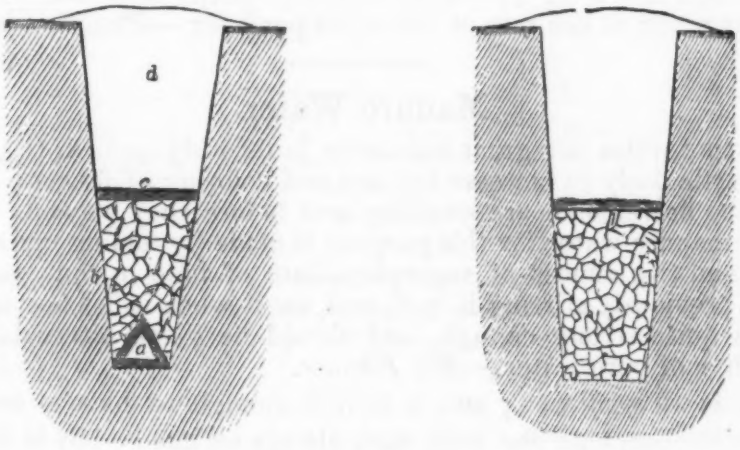
effective by the insinuation of roots, a fruitful cause of failure with shallow drains. We have seen tiles that had lain but two and a half feet deep, so completely filled with grass roots for rods, that very little if any water could be passed through them. It is true, also, we believe, that the deeper a drain is the less the danger of its being stopped by sediment, because in this case the water is more perfectly filtrated before reaching it. We incline, therefore, to the opinion that *few drains and deep* is the best policy, but no certain rules can be laid down. The man who is about to expend money in draining should study the subject in the light of all the experience and observation he can summon; should call in the advice if possible of those who know more than he of the subject; and after all should leave a wide margin for the exercise of his own judgment, acquainted as he is, better probably than any one else, with the nature, tendencies, and wants of his own soil.

As regards the size of drain tiles, something depends upon the length of the lines, those which are longer having to carry more water towards the lower end. We see that the sizes advertised by James M. Crafts, of Whately, Mass., by whom excellent tiles are made, are two inch, three inch, and four inch calibre. The two inch are sold at $12 per 1000 pieces, about 13 inches long; the three inch at $10 per 1000; and the four inch at $10 per 1000. Rarely, however, do the main drains require so large a calibre as four inches; and for all ordinary cases, the run not being unreasonably long, a two-inch calibre is quite as good for the secondary drains as larger. A one-inch calibre will carry a large amount of water by constant running. A two-inch calibre will carry just four times as much, allowing nothing for difference in friction or retardation of water by the sides of the pipe; and after making due allowance for friction, and considering that the friction is less the larger the pipe, it is probable that a two-inch calibre would carry six or eight times more water with a moderate fall, say one inch to the rod, than a one-inch calibre.

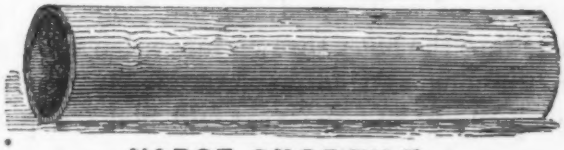
It is not uncommon to lay tiles with a fall of but half an inch to the rod; and they have been known to work well with even less fall than this; but a greater fall is desirable, and there is room for the exercise of much judgment in so laying out the plan of operations as to secure a considerable, and as far as may be, a uniform fall for each drain.

The first of the cuts below exhibits the section of a drain, such as we have described, with the exception that the culvert is differently formed. Perhaps the mode here shown is the best, where stones of precisely the right quality are at hand. The second represents a filled-in stone drain. Such a drain, if three feet deep, and filled a foot and a half with small stones, well covered to prevent the earth fall-

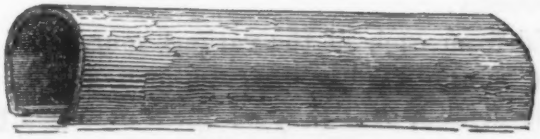
ing in, could hardly fail to do good service, and is not very expensive if half or three-fourths of the filling in be charged to improvement of land in the vicinity. The third, fourth and fifth cuts sufficiently explain themselves.



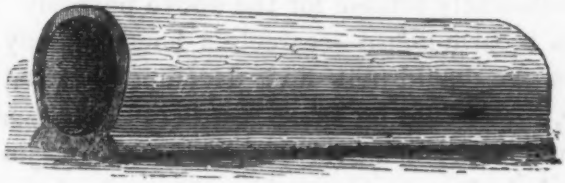
TUBULAR TILE.



HORSE SHOE TILE.



SOLE TILE.



Mules at the St. Louis Fair.

THE exhibition of mules at the St. Louis Fair was said to have been the finest ever seen in this country. A Mr. Adams, of Clay county, Missouri, bore off ten premiums of the aggregate value of $250. His matched mules, four years old, were elephantine fellows—seventeen hands high, of remarkable breadth, with the finest of shoulders and hind quarters, as symmetrically formed as a fine horse, easy trotters, docile, and worth any fancy price their owner might place upon them. Under the class of saddle mules, Mr. Adams exhibited a beautiful an-

imal, nearly black, having three gaits, to which he was well broken, a trot, pace and canter. In size, he was less of a mammoth than the others, but large enough, and well suited to the saddle or buggy, quick in his motions, graceful and perfectly manageable. Mr. A. exhibited him in a buggy, showing a square speedy trot, that would roll a buggy along at the rate of ten miles per hour.—*Prairie Farmer.*

Manure Water.

MANURE water is a great assistance, judiciously applied, to plants in pots, particularly to increase the size and coloring of flowers, if given when the flower buds are swelling, and before they expand. An excellent manure water for this purpose is made by mixing one ounce of guano and two ounces of superphosphate of lime in four gallons of water, previously stirring it well, and use it when it has become clear. This is quite strong enough, and should be given alternately, with waterings of pure water.—*Me. Farmer.*

This is all very well; and it is well enough to have some guano and superphosphate for such uses always on hand; but as few have them, or care to go to a dealer for a few pounds, we venture to say that four shovelfuls of well-rotted manure from the various animals of the farm, including the hens, thrown into a barrel of water, to stand a few days in the sun, and to be occasionally stirred, will give a manure water equally good—one that will make a potato hill grow as luxuriantly, the fruit on a dwarf pear ripen as luxuriously, or the rose blush as sweetly.

In a shovelful from each of the various sources of fertility about the farm-house, as the yard, stables, pig-pen, and hen-house, mixed together and fermented, or if they be taken in only a partially decaying state, are all the elements found in guano and superphosphate, and they are sufficiently soluble for the above purpose.

There is not a farm-house—scarcely a house of any kind—in the country, where we could not find decomposing matters, on the shortest notice, that would be valued by the occupant at one cent or less, which would make a barrel of manure water, just as good as that recommended above.

It is true that a homœopathic dose of guano or superphosphate, especially the former, and perhaps both better than either alone, will give a wonderful richness to the colors of flowers. But they are not the only things that will do it.

It would be well for us not to forget that there are manures otherwhere than in the merchant's back-room.—ED.

A Sugar Mill for the People.

Two weeks ago, we stated in the Local Department of our paper, that we had been informed by certain iron-founders of New-Jersey,

that they had constructed a sugar-mill, which they would have in operation at the Burlington County Fair on the 6th and 7th inst.; that it was our intention to be present at the Fair, and that we would examine the mill and report our opinion of its merits. We were there the first day of the Exhibition, and saw the mill in operation; the juice in process of conversion into molasses; and tasted the manufactured article. *It was a success throughout.* The mill seemed to us to be exactly what every good farmer needs—for we believe that every good farmer will speedily go into the cultivation of this cane to supply his own family with both molasses and sugar. It is a very simple and substantial piece of machinery, and apparently it is impossible to get out of order with anything like fair usage. The canes pass between three iron rollers, put in operation by a sweep similar to that used in old-fashioned cider mills. About ten canes are crushed at a time, producing about one gallon of juice per minute. The juice falls through strainers into a receiving vessel. The driving of the mill is quite easy work for one horse; and the feeding of it is mere play for a small boy. The juice was most thoroughly crushed out. The cost of the mill is $125, and we feel very sure that a better article for the money can not be obtained or would be desirable at this time. Half a dozen farmers might join in the purchase of one.

The makers of this mill—we feel it our duty to announce, for the benefit of farmers—are Risdon & Son, of Mount Holly, N. J.; and we presume that any order for the mills will be promptly filled in time for the present crop. But not a day is to be lost in securing the canes from the frost, and converting the juice into molasses, if advantage is to be taken of the canes still standing.—*Germantown Telegraph.*

Indian Corn.

Maize, or Indian corn, originated in America, and is not yet, we think, cultivated to any extent on the European continent. Though the people of Great Britain can not be made to appreciate its merits very fully, the aggregate exports of corn in 1856, in the form of whole grain, meal, corn starch, farina, etc., amounted to between seven and eight million dollars, or about one-fortieth of the whole exports of the country, and 6,700,000 bushels, considerably more than half, went to England alone. Corn has always been an important article in this country, both of consumption and export. The total amount of this produce exported in 1770 was 578,349 bushels; in 1791, 2,064,936 bushels of which 351,695 were Indian meal. The value of corn and its manufacture exported from the United States in 1830, was $597,119; in 1835, $1,217,665; in 1840, $1,043,516; in 1845, $1,053,292; in 1850, $4,652,804. The export increases more rapidly than the production. The export of corn quadrupled between 1840 and 1850, while the production did not quite double. The great amount of invention bestowed on corn-planters, corn-cutters, shellers, cob-grinders, etc., tends each year to promote the increase of production. It has been estimated that as a general rule, seven pounds of corn will produce one pound of pork; so that in localities where, through distance from market or from transportation facilities, the cereal can not be raised at profit for sale, it is frequently the material

used in fattening the more concentrated form of diet, and on which, consequently, the freight is less. Cob meal, we believe, is most valuable for animals that chew the cud; horses and hogs, as a general thing, deriving less benefit from the cob-grinding invention. With all animals, however, we believe, there is a perceptible advantage realized by mixing the cob with the denser meal.—*Scientific Amer.*

Fattening Properties of Peas and Beans.

THESE articles have been found by chemical analyses rich in nitrogen. The inference has been that they would be specially useful in supporting the waste of the muscles of animals, and it has been suggested that they would be particularly useful in the production of wool. They are evidently valuable for these purposes, but not the less valuable for the production of fat. Those persons who have used peas for fattening hogs, consider them worth as much as Indian corn. In districts where that grain is not grown, very fine pork is produced from peas. Dickson, in his work "On the Breeding of Live Stock," states that a sweep-stakes was entered into between five East Lothian farmers, to be claimed by the one who should be pronounced the best feeder of cattle. Forty cattle of the same breed, and in equal condition, were divided equally among them, as fairly as possible. They were put up together the second week in September, and killed at Christmas following. The winner of the stakes fed his animals wholly on boiled beans with hay.—*Exchange.*

Mouldy Peas, Beans, Grain.

THE generation of mould in peas, beans, and grain, when put into granery in a somewhat moist or humid state, is with difficulty prevented. When this evil occurs the legumes or cereals affected are supposed to be rendered utterly worthless thereby; but such is not the fact. Peas or beans, corn or wheat, that has become mouldy, may be perfectly deprived of its unpleasant smell and taste by immersing it in hot or boiling water and permitting it to remain therein till the liquid becomes quite cool. If one immersion does not prove effectual let it be repeated. Animals devour mouldy grain when managed in this way as greedily as any, and are apparently as much benefited by it. Peas constitute an excellent feed for swine; and few articles are more strengthening to sheep than beans. They should be given before and after casting their lambs, with a small quantity of chopped turnips—say about two quarts per day—one quart in the morning and one quart at night. This will generally be sufficient, and will tend to promote the action of the lacteous system, and procure a copious flow of milk, besides proving highly promotive of the general health of the system—*Germantown Telegraph.*

Privy Manure for Corn.

A GENTLEMAN manured one-third of a corn plat with guano, one-third with barn manure, in which the urine had been saved, and one-

third with privy manure, in which swamp muck had been mixed as an absorbent. While the corn was growing, that which had been treated with guano seemed the most luxuriant, but on harvesting it, the section manured from the privy produced the most corn, both in the ear, and in shelled corn, by weight.—*Maine Farmer.*

How to Increase Manure.

If you have not hitherto done so, permit us now to prevail on you to take this advice: Have as many loads of rough materials hauled and spread over your cow-yard as will make twelve inches in depth. In spreading, so fashion the materials as to be basin shaped, the lowest point being in the center to prevent the escape of the urine. While the rough materials are being placed in and spread on the yard, dust each layer so spread, with plaster, or with pulverized charcoal, and when completed, dust the surface with either of the substances named; then roll the yard to consolidate its contents—the heavier the roller the better. Occasionally throughout the yarding season spread plaster over the yard, and from time to time add rough materials.—*American Farmer.*

History of Fine Wool Sheep.

[CONCLUDED FROM OUR LAST.]

The English farmer said at once: "I can do nothing with these little sheep; I may get two or three dollars for the wool, but I can get ten dollars for the carcase of the mutton sheep, if I loose all else. Besides, these little sheep can not live in the fields in the winter. They are not stout enough to endure that. I must have the large sheep for the mutton I can get out of it, and because it will live on the fields in the winter and enrich my land, so that it will yield twenty two bushels of wheat to the acre." That is the average in England; our average is not fourteen. Do you wonder, Mr. President, why they would not introduce and adopt the merino breed of sheep in England? You can see at once why it was so. After the utmost exertions, for some thirty years, in trying to do this, and succeeding not at all, finally the royal flock of fine wool sheep was sold at auction. I have seen the account of those sales in the Library of Congress, showing to whom each sheep was sold, and how much it was sold for.

While this business was going on in England with this want of success, in Saxony they had attended to that family of sheep which came to the Elector of Saxony, and had bred in entirely with regard to the fineness of the wool. They had shepherded them on the fields and plains of Germany, and bred them in fine, by selecting the finest all the time, without regard to size. The result was, they got a delicate, small, tender sheep, called the Saxony sheep, which is all over the regions I have mentioned.

The gentleman who bid off, in 1817, I think, the greater part of the royal flock that was sold in England, was a captain in the British Navy. His name I do not remember; I think it was Mitchell, or some common name of that kind. He went, about the same time, to Sax-

ony, and bought a larger flock of the Saxony breed, and carried them both to Australia.

That is now the family of Australian sheep; their wool is a fine silky wool. It has been produced by crossing the breeds from England and Saxony.

Now, how came these in our country? Mr. Livingston, who was our Minister to France in the latter part of the reign of Louis XVI., got a few sheep from the Rambouillet flock in France, and carried them to New-Rochelle, in New-York. Colonel Humphries, of Connecticut, was our Minister to Spain at that time, and he got a few sheep as a present from the King of Spain. They were taken to Connecticut; but they never amounted to much.

About 1810, at Bonaparte's second invasion of Spain, when he had possession of the Prince of Peace, and endeavored to reëstablish Joseph Bonaparte on the Spanish throne, the Cortes ordered the sale of the royal flocks, for the purpose of raising money to defend the nation, giving to the purchasers the right to carry them out of the kingdom. William Jarvis who is still living in Vermont, was then our consul at Lisbon. Seeing this advertisement, he went into Estramadura, and at that auction bid off eleven hundred of the sheep. He sent them to this country—to Baltimore, Philadelphia, New-York and Boston—reserving a flock to himself, as he was about to return home. He returned with his flock to his farm in Vermont, where he now resides, and where he has kept that family of sheep, to this day. He has shearings of each year from that time to this, marked with the dates, so that you can compare them, and see whether the wool is improving or deteriorating. There is a decided improvement. It is a great deal better than when he brought the sheep from Spain. His importation was the basis of the merino sheep of this country. I well remember that soon after the close of the last war with Great Britain, in which we suffered so much for the want of woolens, some of these sheep, a year or two old, sold for $400 a piece. I have seen a little merino sheep, that a man could carry under his arm, sold for $400. They were thus introduced into New-England, and they have gradually spread off into Pennsylvania, New-York, Ohio, and so on West. As late as 1826, after we had entered upon the protective system in relation to woolens, and especially after the act of 1828, our people went to Saxony and obtained some of the Saxony flock as a finer wool sheep. Considerable numbers of them were imported in those two years; but they did not answer our purpose at the north. They were too feeble; they were not stout enough for our climate; they did not winter well; but they have done pretty well in some parts of the country—I have particularly on my mind Washington county, in Pennsylvania, where they are producing Saxony wool of high quality. In Ohio they have crossed the Saxony with our eastern merinos; and a large part of the wool of northern Ohio now is of as high grade as the full blood merino, and perhaps a grade beyond that and Saxony together.

I have thus, Mr. President, attempted to show, in a brief, summary manner, that fine wool is all the produce of a single family of sheep. Whatever difference there is in its quality depends on the care, and the breeding, and somewhat slightly on the climate and feeding. In Saxony their flocks are driven under shelter in hot days of summer.

There are sheds for them to protect them from the heat of the sun. That care is not taken in this country; perhaps they do not need it here. In Australia the wool made from the English and Saxony merino sheep is a fine and rather longer wool than ours. It is silk. Some few of these sheep have been taken to Brazil and Chili, and there crossed with the native sheep, producing a rather better quality of wool, but still a coarse wool. The great body of the long wool, which is combing wool, for the making of worsteds, is English wool. The coarser wools, which we use for bocking, carpets, blankets, and coarse articles, are the Smyrna and Rio Janeiro wools. The wools cited in your commerce and navigation reports as Smyrna wool comes from Asia Minor; and the wool quoted as Buenos Ayres is from Rio Janeiro and other parts of South America.

The Steam Plough.

THE whole world seems waking up to the importance of the successful introduction of the Steam Plough. At the present time it would be particularly fortunate for the whole country. A great many are looking for a wide-spread revulsion in the monetary affairs of the country, consequent upon the immense speculations in Western lands. Whether such a revulsion will occur or not, depends upon the ability of the country to occupy and make productive these lately purchased lands. The amount of labor applicable for this purpose is limited. But if the Steam Plough can be invented, that shall go over twenty acres a day, *and do the work well*, which we believe will yet be done; then the manual and horse labor that can be procured, coupled with the new invention, will be made to occupy and render productive twice the quantity of land that could otherwise be done.

Mr. Bronson Murray, of Illinois, has offered a reward of $50,000 for the best practical Steam Plough. And we presume that Mr. Murray, in doing this, does not lay claim to any great liberality or public spirit, for the patent right of *such a plough* would probably be worth *half a million of dollars.* In offering, therefore, such a reward, it simply shows that Mr. Murray, (living among the prairies,) can appreciate the immense demand there would be for such a plough, when once practically and satisfactorily tested. The inventive mind of the nation is now busy at work, and we hope soon to be able to announce a satisfactory solution to the problem proposed.—*Ohio Valley Farmer.*

Bones as a Manure.

A LATE number of the *Country Gentleman* has an elaborate article by Levi Bartlett, of New-Hampshire, on bone manure. He concludes that there is no other manure whose effects are so lasting as an application of ground bones. Besides the increase of crops, he says it supplies phosphate, which the grasses generally lack, on old and long grazed fields in New-England, and the want of which, cause what is called "bone disease" in cattle. Mr. B. recommends that the bones be pounded, and thus broken to pieces, boiled or ground, and then spread evenly over the soil, and mixed with it. He has a field that was thus dressed years ago, and the effect is yet perceptible on clover.

Spirit of the Agricultural Press.

Of a recent trip among the farmers of New-Hampshire, the editor of the *Country Gentleman* says, among many other good things:

"In the vicinity of the manufacturing places, many farmers are in the practice of selling large quantities of hay, yet these farms are annually improving, without the purchase of manures to any great extent. The muck beds, barn cellars, the tying up of their cows and some other of their stock in hovels the year round, and skill in collecting other materials for enriching their grounds, solves all mystery in this matter."

On the cultivation of the grape for the purpose of manufacturing domestic wines, he has the following remarks:

"At many farm-houses we were treated with domestic wines, generally that made from currants, and in most instances the wine was of superior quality. At one farm-house we partook of some superior grape wine, manufactured from the domestic grape—the worthy old farmer assuring us that it was the pure juice of the grape, having neither strychnine or any other poisonous ingredient in its composition. We think it would be well for farmers, generally, to cultivate more extensively the currant and the grape, for the manufacture of domestic wines for family use."

As to whether it is twelve or fourteen degrees below zero, irrespective of other circumstances, that kills peach trees, we find the following, a poser, we should think, to those who ascribe the winter-killing of peach trees simply to cold:

"In most parts of this State, the mercury, the past winter, sunk from 30 ° to below the freezing point of mercury, and yet the peach buds in many localities survived, and we have freely partaken of New-Hampshire peaches the past week."

The editor of the *Germantown Telegraph*, on Horse-Racing at Agricultural Fairs, after admitting the necessity of a reform, has the following, as we think, very sensible remarks:

"But may they not go a little too far, and destroy this important feature of these occasions? The horse is the noblest and most valuable animal owned by man; and the farmer should be the last of mankind to strike a blow at the position which it must always hold in the interests which he represents, and the sympathies and affections of his heart. What ever is done in the premises, ought to be well considered by practical men—those who cultivate the soil, and would, naturally, promote the respectability and benefits of agriculture and agricultural exhibitions. We think there can be no solid objection to the trial of the speed of a horse upon a ring, which should never be *more* than one-fourth of a mile in circumference, inasmuch as the action and general movements, and, we may add, hardihood, or bottom of a horse, can in no wise be judged of better than from such a display.

But *matches*—that is, the trial of the speed of more than one horse at a time—are what produce all the mischief, and cause all the complaint. These we have been always opposed to; and if our advice had been taken in due season, there would have been no reason for the hostility of our local society *to the horse track*, at the present time. The idea that an exhibition of "steam culture" would be of more importance to this community, at our annual shows, than the proper display of horses, is one that may be cultivated by intensely philosophical minds, but it will cause only a broad grin among the farmers of Pennsylvania. No, gentlemen, reform, not destroy, the manner of exhibiting horses, or you will speedily put an effectual damper upon the success of any future exhibition which our good, time-honored, beloved but neglected society may attempt to hold."

"Reform, not destroy," says the editor of the *Telegraph*, and so say we. No man can be more opposed than we are to changing the fair grounds from delightful gathering places for honest farmers, into rendezvous for all the impudent jockeys in creation, and yet we would not exclude that noblest of all animals, the horse, nor would we exclude the man who inaugurates improvements in our horse flesh, from a participation in the funds of our agricultural societies. "Reform, not destroy," is the word.

The *California State Journal* tells us of a new cereal, but does not know its name. Probably it will turn out to be Sorghum Cereale, Imphee Ædibile, or something as strange to our ears. It gives the following description:

A New Cereal.—We saw, a few days since, a specimen of a new cereal, grown in this county. We could not get a description of the stalk, or an account of its origin, and, with nothing to guide us beside the ripened grain, we could not class. It appeared to be the fruit of a rank grass, stronger and larger than wheat, but more light and fragile than Indian corn. The ear or cluster of grains, formed on the summit of the stalk, was about three and a half inches in length, about four inches in circumference, and of an irregular, oblong shape. The grains, of which there were several hundred in the cluster, resembled, in size and form, the grain of the common broom corn, were compactly set, without an outer or general covering, each grain having a delicate husk, covering about half its bulk. The grain was harder than wheat, rather brittle, and, when broken, gave a taste undistinguishable from that of Indian corn. From the limited knowledge of the nature and habits of the plant to be gathered from a cursory examination of this isolated specimen, we incline to the opinion that it may become a prolific and valuable article of agriculture. The "head," or cluster, that we saw, will yield about as much in weight and volume as fifteen or twenty ordinary heads of wheat. We shall learn more about this interesting specimen in a few days.—*S. J. Rep.*

Mr. E. D. Boylston, of the Amherst (N. H.) *Cabinet*, has experimented quite extensively with the Chinese sugar cane. He says:

"We have continued our experiments with the sugar cane up to

the present time. The yield of syrup has steadily increased from the time of the appearance of the panicles some weeks since, and the quality has as steadily improved. Our last trial yielded one-sixth of syrup of the thickness of sugar-house molasses, and of a very fine quality. We think it will still improve until after a heavy frost, which will not injure the cane itself, which may be left standing while the leaves may be gathered at any time when likely to be destroyed. We are, as we were last year, fully sanguine in our belief of the practicability of raising this crop for syrup in this State."

Similar statements of opinions appear from various places in New-Hampshire, and from other places as far south. One writer says: "The taste of the syrup is indeed something like that of the "sugar house molasses, or syrup, and, in our opinion, much better for warm cakes than ordinary molasses." Will our readers send us a statement of their experiments with the sugar cane?

Our opinion has inclined favorably to the new plant for the South; and if it benefits the South, we have believed it would benefit the whole country, on the principle that the good of a part is the good of the whole; but we now incline to the opinion that it may be of direct benefit to all the parts; not to the North probably as a sugar-plant, but as one that may produce syrups, and is without much doubt a valuable forage plant.

The *Honolulu Commercial Advertiser* has the following "Hints to Agriculturists," not bad for this or any other latitude:

Independence of the Farmer.—The merchant or manufacturer may be robbed of the reward of his labor by changes in the foreign or domestic market entirely beyond his control, and may wind up a year in which he has done everything which intelligence and industry could do to insure success, not only without profit, but with an actual diminution of capital. The strong arm of mechanical industry may be enfeebled or paralyzed by the prostration of those manufacturing or commercial interests to whose existence it so essentially contributes, and on whom in turn it so essentially depends. But what has the intelligent and industrious farmer to fear? His capital is invested in the solid ground. He draws on a fund which has never wholly suspended or repudiated; his success depends on no earthly guarantee, but on the assurance of that great and beneficent Being who has declared that while the earth endureth, seed-time and harvest shall not cease.

Not so bad this from the *Chicago Ledger:*

"To Persons out of Employment."—Go to work! Take off your coat, roll up your sleeves, and look about you! If you can't find anything congenial or remunerative, in the city or town, betake yourself to the country. Better weed gardens and tend sheep, or follow the plowshare bare-footed, and tread on the furrows, or to act as a scare-crow in the cornfield, than to remain in the city, out of pocket, out at the elbows, in debt, in distress, and in misery, generally.

Don't be afraid to commingle freely with your mother earth, and sit under a cataract and be washed clean—be invigorated and feel like a *man*. The country is the place for you, decidedly, where pure air costs nothing, where the sunbeams steal through the cracks in your chamber and dance on the floor, where one doesn't have to walk a mile and a-half to see the sun rise, and where the waving grains bows gracefully to the gentle breeze, and eggs can be had for the hunting. Once there, and reïnvigorated, and you will look with pity upon us, poor mortals, walled in by brick and mortar on all sides, with the heavens far, *far* before us, and no hope of ever reaching that blessed abode.

New-England Farming.—We cut the following from the *Valley Farmer*, Louisville, Mo. Whether the New-England farmers manage as well as the writer represents, we are not so certain, but we are quite certain that he has "good notions" since he has been down east, about feeding, sheltering, caring for, and making improvements in cattle. Hear him:

"I see much in my New-England travels that I would like to speak of to your readers. There is life astir in all the valleys. There is beauty on all the hills. The season is a wet one and very productive, so that greenness and freshness make lovely every landscape. But just now I wish to speak of the *stock* of this country. As yet I have not seen a mean, poor, scrawny ox, cow or hog. They are all fat, sleek, and generally large. There has been a wonderful improvement in the stock of this country in the last ten years. And it has been almost wholly effected by good keeping and care in breeding from the best animals of their kind. In the parts in which I have traveled I have seen but little foreign blood. I think I have not seen a speckled or parti-colored ox or cow in New-England. I have met with one roan bull of the Durham breed. The farmers here like handsome cattle, so they choose their color. Dark red or chestnut is the prevailing color. Sometimes brown verging near to black will be found. The general build of the stock here is compact, close and hardy. It looks thrifty and active. One seldom sees a sleepy, dull looking animal. There is something bright and animating in the countenances of all the cattle I have met. They seem to be alive with the stir of the times, and to partake of the intelligence of the age. I speak not of horses, for New-England has not improved her horses so much as her cattle. What I have seen has convinced me more than ever that good keeping, good shelter, (for all stock is well housed here) and intelligent care in breeding, will be sure in the end to make good stock. This is emphatically a stock country. Stock is the main reliance of the farmer for money. Hence the farms here are continually improving. All the hay and grain raised is consumed on the farm, and converted into manure. Let the western farmer take heed in season."

Good Cheese.

For a cheese of twenty pounds, a piece of rennet about two inches square is soaked in a pint of water twelve hours. As rennet differs

much in quality, enough should be used to coagulate the milk sufficiently in about forty minutes; no salt is put into the chesse, nor any outside during the first six or eight hours it is being prepared, but a thin coat of fine salt is kept on the outside during the remainder of the time it is in the press. The cheeses are pressed forty-eight hours under a weight of seven or eight hundred pounds. Nothing more is required but to turn the cheeses once a day on the shelves.

Mother's Premium Cheese.—The milk strained in large tubs over night, the cream stirred in milk, and in the morning strained in the same tubs; milk heated to natural heat; add rennet; curd broken fine and whey off, and broken fine in hoop with fast bottom, and put in strainer; pressed twelve hours; then taken from hoop, and salt rubbed on the surface; then put in hoop, without strainer, and pressed forty-eight hours; then put on tables, and salt rubbed on surface, and remain in salt six days for cheese weighing thirty pounds; the hoops to have holes in the bottom; the crushings are saved and set and churned to grease the cheese. The above is for making one cheese per day.

1. No salt to be put into the cheese, but fine salt rubbed on the surface.
2. Remain in press forty-eight hours.
3. Dry, cool cellar, not damp.
4. To make whey, add the rennet while the milk is warm.

I would like a cheese made after either of the above plans.—*J. M. B., in the New-England Farmer.*

Cornfields.

We copy the following from that excellent paper, the *Germantown Telegraph*, not supposing that it will be quite new to all our readers, but because we regard it so practical and important as to be worth their reading twice, if any of them may have seen it before. Some will say, it is too laborious to prepare soil as nicely as the writer recommends. Perhaps so, and yet, while we are sure you will get more corn to the acre by such cultivation, we are by no means sure you will get less, in proportion to the labor required. We commend you to the article:

Mr. Freas: A few suggestions at this season, to those of my fellow agriculturists in relation to the management of lands that have been cultivated in corn, may not be unimportant. It is a common practice to harvest this crop, by cutting it up at the roots, leaving the latter and a portion of the stalks in the soil. When so left, both the roots and the stalks attached present a serious obstacle in the way of the after cultivation, diminishing, to a certain extent, the subsequent product whether of roots or grains. The most economical method, perhaps, that can be adopted, is to pull the plants from the soil, and detach the roots by the aid of a keen knife, or other efficient instrument, and convey them to the compost heap or hog yard. This practice secures a clean surface, and renders the operation of plowing, har-

rowing, cultivating and hoeing, much more easy, and secures a much larger extent of surface for the occupancy of the crop. Before plowing—whether that operation be performed in spring or autumn—every vestige of spurious vegetation should be moved, and the surface rendered as clear as circumstances will admit. Stones, stumps, and all substances of a similar character, oppose a serious obstacle to the successful performance of all the more important operations of husbandry, and their presence should not, on any account, be allowed. Very little time is required to get rid of them. As a general practice, I prefer plowing corn lands in the autumn. Not only is there more leisure time than during the more busy and exciting season of spring, but the team is more energetic, and consequently labors with less reluctance, and less fatigue. There is also another important advantage resulting to the farmer from the autumnal preparation of the land. Where clay abounds, the pulverulent action of frost and the elastic gases are of decided importance, rendering the texture fine and easily managed, and securing a more speedy decomposition of the manure when applied the subsequent spring. By careful examination, and from information of a most reliable nature, obtained from practical men during the last twenty years, I am irresistibly compelled to accord by suffrage to this practice, as being every way superior to every other method now in use; and this, I am persuaded, will be the conclusion of every one who carefully examines the subject. The finer the soil is made, the better adapted will it be to the production of any crop; but this fact does not appear to be appreciated as it ought by most of our farmers. They seem to suppose that if land is plowed, it matters but little *how* it is performed, or whether it be fine or coarse—reduced to a light, compressible mass, or merely broken into lumps. This is a fatal mistake, and one that requires to be corrected at once. If those who are at all sceptical on this point, will but make an experiment, they will have palpable evidence of the superiority of fine over coarse tillage. To all such, I would say, as a friend, *try it.* Jethro Tull promulgated the doctrine that pulverization alone would produce fertility, and that all that was actually necessary to secure the productiveness of any land, was to divide it into infinitesimal atoms, in which condition it would, he contended, be competent to produce, indefinitely, any and every variety of vegetable required. But this, subsequent experience demonstrated to be a fallacy. Still, however, the advantages found to result from the careful comminution of lands intended for cultivation, were, at the same time, demonstrated to be very great, and his views, although deprecated in the main, were nevertheless adopted in part, especially by those who had heavy and tenacious soils, and who could well afford to bestow the labor necesary to reduce them to the tilth required. We are all aware that garden beds receive far more thorough culture than lands devoted to field crops; that they are much more thoroughly plowed, to begin with, that they are worked till every lump is broken and reduced to that fineness of subdivision which renders it a fit medium for the finest and most minute seed. To this superior tillage, in a very great degree, we attribute the superior productiveness of lands under garden culture, to those under field culture. It has been proved, by repeated and accurate experiments, that a fine, light surface acts as a non-con-

ductor, and that all lands finely divided in their particles, are capable of withstanding the effects of drought and intense heat for a much longer period than those which are not finely pulverized. Some "practical men" assume to question this fact; but let any one try it, and he will soon see enough to convince him of its truth. It is only making the trial, and will cost but a mere trifle.

A New Animal for Farmers.

A VALUED friend and correspondent, in New-York, informs us, upon authority which is undoubted, that a naturalist in South America has undertaken to introduce into the United States from one hundred and forty to one hundred and fifty *Llamas*, the well-known animal of Peru and Ecuador, which are used there as beasts of burden, and which produce the wool, or rather hair, called alpaca. The adventure has been entered into by a very responsible house on the south-west coast of South America, who have collected the animals and chartered a vessel to transport them to Panama, whence they will be conveyed to New-York, where they are expected shortly to arrive, and will be offered for sale.

These are very hardy, docile animals, capable of carrying over the rockiest portions of the mountains of South America about three hundred pounds weight each. They are easily nourished, and it is believed that though coming from a much warmer climate than our own, they will stand our winters as well as our sheep, and be equally or more profitable in the production of wool. We shall keep our farmers apprised of the arrival of the first importation, and, if we are furnished with it, with the address of the party or house, having the disposal of them.—*Ger. Tel.*

Horticultural.

Northern Muscadine Grape.

THE *Maine Farmer*, always sound, sensible and conservative, though we can not say whether correct in the present case, has the following remarks on this fruit:

THE NORTHERN MUSCADINE GRAPE.—The Northern Muscadine grape has made some noise in the world, and in regard to it the most contradictory opinions seem to exist, some pronouncing it a first-rate grape, some an ordinary one, and some good for nothing at all. It has been extensively propagated by the Shakers and claimed to be a seedling of theirs.

Friend Otis Sawyer, a member of the West Gloucester family, exhibited some of the fruit at the State Fair in Bangor, and specimens were laid before the Pomological Society. These were quite ripe, although raised in the open air. Although not coming up to the class of A. No. 1, it is nevertheless a good grape to those who relish a little

touch of the musk, (and many do,) and considering its hardy character and early maturing, is worth a trial in this section of New-England. A prolific, hardy, and early ripening grape, is yet a desideratum with us in Maine. We should therefore make a trial of everything that promises to be successful in this way. The Northern Muscadine can be obtained of friend Sawyer. We are aware that our horticultural brethren farther south turn their noses up at it and call it "old red fox," but a good "red fox" with us is not to be despised, and it may lead to the propagation of a still better early variety. We must experiment on these matters for ourselves, and with reference to our own climate.

Leather Scraps.

The parings of shoes, boots, harnesses, whips, trunks, portmanteaus, etc., are an excellent fertilizer, hardly equalled for durability. Nothing is better for vines; and they are good for all kinds of fruits. In some districts in England as high as 4 cts. a pound ($80 a ton) have been paid for them. Their excellence lies in the fact that they last a long time, and if placed under vines and fruit trees at transplanting, they will be changing into purple clusters and golden fruits for a lifetime.—Ed.

How True.

In a recent number of *Hovey's Magazine*, the remark is made that "few complete and thoroughly made gardens and grounds are to be found. We see everywhere in the rapid increase of wealth and population in our suburban towns, fine buildings, erected almost by magic, in the highest style of architectural art, and finished without regard to expense. These costly dwellings, as well as those of more humble pretensions, meet our eyes in every direction, and would command our highest admiration, but for one defect. They are wanting in the elegant surrounding which should belong to every suburban residence; the lawn, the ornamental grounds, the fruit garden, or even the little parterre, have been entirely neglected, and they stand bleak and alone, an ostentatious display of wealth *without taste*, on the one hand, or the appearance of a depleted purse without the means of doing anything more on the other."

A Good Method of Keeping Grapes.

"Dr. E. Liffingdale, of Aurora, N. Y., assures the horticulturist, that both himself and neighbors have no more difficulty in keeping grapes than apples. Gather them carefully on a dry day, remove all unsound or unripe berries and pack them in small, shallow boxes, with paper on the bottom and between the layers; set them in a cool, dry place for ten days, when they will have passed the sweating process, and *then close* them tight and keep them at a low temperature without freezing. A dry cellar will answer."

The Birds.

Mr. Editor:—You are probably aware that against certain species of the feathered tribe, there exists a very strong prejudice in the minds of our farming friends. Of these, the crow comes in for rather more than his share, I think, considering the good he does. His labors may not, it is true, always result in the good the farmer; but we should be candid in this matter, and allow the good he does to offset the evil. In the spring of the year, when there is a scarcity of those insects which nature has set apart, by a sort of special appropriation, as his peculiar food, he sometimes preys upon the farmer's corn; but as soon as the various tribes of vermin which throng the fields and "people the multitudinous air," issue from their dormitories and commence their depredations upon the vegetable world, the crow heroically enlists in the farmer's defence. He is no inactive ally, either; he carries the war into Africa, at once, and destroys whole hecatombs of voracious bugs, worms, flies, caterpillars, and other vermin which would soon lay waste his fields and his hopes, and effect more injury in one month, than his crowship effects in a lifetime. To hunt and destroy him, therefore, because during a period of scarcity, he manifests an inclination to take pay for his future services, is ungenerous and unkind, to say the least. When the farmer rightly comprehends his own interests, and looks upon the subject as he ought, he will be as anxious to preserve the crow from harm, as he is now to destroy him. There are other birds who, in like manner, are made to share in this ungenerous proscription; yet there is not one in the whole catalogue—quite a lengthy one, by the way—which does not effect far more good than harm. The number of insects which these birds destroy, is prodigious; and were it not for their labors, our fields would, in a very short time, be completely overrun and devastated by them. The fecundity of many of the aligerous, or winged depredators upon our crops, is truly astonishing, and nothing but the ceaseless and effective labors of our winged friends of the air prevents the total destruction of every vegetable upon which we rely for subsistence, both for ourselves and our animals. It is therefore much better to adopt some simple means for the protection—partial or entire—of our crops, than wantonly to destroy the birds, and let our fields be overrun with vermin.—*Germantown Telegraph.*

Stunted Unthrifty Pear Trees.

Wm. Day, of Morristown, N. J., considers that one great cause of the unthriftiness of the pear, lies in the fact that many of them are worked (budded) upon sucker stocks. He tried the experiment by planting out 1000 of these suckers, obtained from old trees, and after nursing them for several years, during which he budded some and grafted others, giving all careful culture in good ground, he was compelled to discard the whole of them. A neighbor of his held on to them for ten years, but failed to get four good trees out of 100 planted. We fully endorse his (Mr. Day's) closing remarks, viz.: "Good, thrifty stocks and clean culture will alone produce vigorous and thrifty trees, and no respectable nurseryman will use any other."

MECHANICS' GUIDE.

Recent American Inventions.

Jewett's Patent Artificial Leg.

This leg is so constructed that its lower end overlaps the foot on all sides. In Mr. Palmer's patent, the leg overlaps the foot behind, and the foot overlaps the leg before. Mr. Palmer also has an opening in the top of the foot at the joint, allowing the entrance of dirt and lint upon the spring within the foot. Mr. Jewett's is free from this objection. The toe is kept down by a spiral spring, G, one end of which is inserted into the foot, and the other presses against the toe above the joint, and it is prevented from opening too far by the contact of the bottom of the foot and the toe. A spiral spring inserted in the hollow of the foot keeps the foot in its proper place, a cord passing through the spring and terminating in a wire hooked to a cross bar in the leg near it. The toes are so connected with the foot, that they can be removed by merely taking out a screw in each side of the foot. The knee and ankle bolts, B, are slightly tapering, both ends being squared and fitted to the inside of the plates, with a flat-headed screw in the smaller end, to secure the bolt in its place. By taking out those screws, the bolts can be easily removed for lubrication. These bolts pass through metallic boxes, F, and both bolts and boxes are of cast steel and hardened. By the use of a bent steel spring, E in the leg, attached by a wire to the front of the knee, which may be used with any length of stump above the knee, the use of the wire spring used by Mr. Palmer is avoided. The tendon Achilles and knee cord, D and C, pass through apertures in the knee, and are attached to the thigh with blocks fitted into sockets in the wood. Every part is so constructed as to be easily removed.

Fig 1

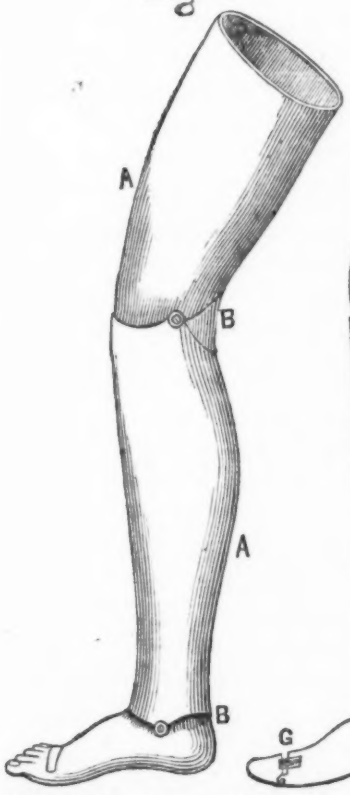
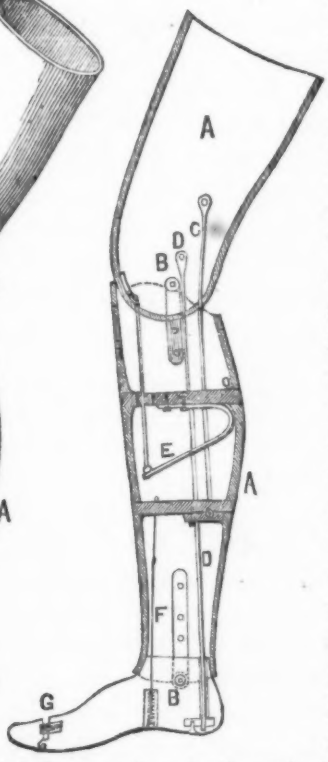


Fig 2



New Type Setting and Distributing Machine.

One of the most ingenious inventions we have ever examined is a new type setting and distributing machine, just patented by Mr. Alden of this city. The

patent covers twenty-one points, and of course it requires many diagrams to exhibit the whole so as to be understood by the reader. These diagrams are not in existence, except in the letters patent, and hence we make only a statement of the prominent parts, with the specific points covered by the patent, viz.: 1. A method of conveying the type to and from the cases and the composing tables. These conveyers receive all type indiscriminately. 2d. The mode of attaching the conveyors to the carrier. 3d. A contrivance for giving to the conveyor a vibratory or tilting motion. 4th. Devices for arranging the types edgewise. 5th. Mechanism for pushing out the type upon the conveyors. 6th. Mechanism for preventing the stopping of a setting conveyor at a channel when full of types. 7th. The method of discharging the type from a distributing conveyor into the type channels. 8th. Mechanism for setting the gripping bolt upon the conveyors. 9th. The method of securing the deposit of the types into or taking them from the case. 10th. Stationary inclined planes. 11th. Movable indicators. 12th. Method of setting the distributing indicators. 13th. The graduated stop, in combination with the indicating levers, for regulating the feed of the line of type. 14th. Mechanism for moving the levers. 15th. Mechanism for feeding up the column of types into the channel, 16th. The method of engaging or disengaging the feeding pacols. The points numbered from 17 to 21 inclusive, regard the mechanism used in securing right movements in the parts already mentioned.

We regard this as a work of genius of high order, and from the evidence already exhibited, can hardly doubt that it will become of practical value.

Brown's Safety Alarm Detectors.

We saw and carefully examined sundry contrivances, or rather sundry applications of the same contrivance, now on exhibition in the Mechanics' Fair at Lowell, Mass., devised and patented by Mr. Ephraim Brown, of that city, for the detection of burglars. One of them is

DETECTOR MORTISE LOCK FOR DOORS.

It looks precisely like any other mortise lock, with a knob handle, but whenever an attempt is made to open the door, a bell is rung. This bell is concealed within the casing. Ingenious arrangements are made by which the ringing may be prevented, and the alarm is thrown off from a given lock by different means, so that one who can open his own door without detection, can not open his neighbor's. Nor can even the maker of the lock. One hundred of these locks, it is said, in use only one year in one city, have detected seventy-four thieves, and not a case has occurred in which a thief has succeeded in opening one of them without ringing. Without reference to the alarm machinery, the lock is a very good one.

WINDOW AND MONEY DRAWER DETECTOR.

The same application is fitted to a money drawer, and similar modes are adopted for preventing the action of the alarm, by any who are in the secret. It is also applied to a window, so that it can not be raised without making an alarm. The bell is in the casing. It does not ring when the sash is lowered. It holds the sash in different positions like any other spring. In the country,

where watchmen and policemen are seldom employed, these detectors would be of very great service, and in the cities they might sometimes detect even the guardians of the peace in criminal attempts. Mr. Brown has published the testimonials of several gentlemen of high respectability, assuring the public that his statements may be relied upon, and that his engagements will be honorably fulfilled. Several thousand detectors have already been sold, many of them as a substitute for the night locks, so extensively used on outside doors.

IMPROVED STEAMERS.

Mr. Brown has also contrived a very convenient and useful affair for steaming vegetables, etc. It consists of a wire basket, to be set in any boiler, above the water for steaming, or in the water for boiling. In boiling eggs they are especially convenient. The whole number being immersed at the same moment, and all removed at once. They may be used advantageously in cooking potatoes, and in general they are convenient as a security against the scalding of the hands.

Sewing Machines—Grover & Baker's Stitch.

In our last number we described the different kinds of stitch taken by several of the most popular sewing machines, with diagrams of the stitch. The third diagram, (Grover & Baker's stitch,) gives an incorrect idea. We described this as a shuttle machine, that is as using two threads, while the diagram shows but one. The waving thread, advancing and retreating, there given, was intended to show only the general movement of the lower, which is operated on this machine by a curved hook beneath the cloth, and the diagram gives only an imperfect idea of this. This hook thread traverses only upon the lower side of the cloth, and this is curiously and ingeniously hooked into and interwoven with the needle thread, and each thread being doubly locked forms a stitch of great strength and elasticity. Each stitch fastens itself, and holds on, even if the seam be cut or broken every quarter of an inch. We make these corrections to prevent any injustice to the proprietors of this machine, from an error which was purely accidental, and shall probably have more to say upon the subject in our subsequent issues.

New and Curious Printing Machine.

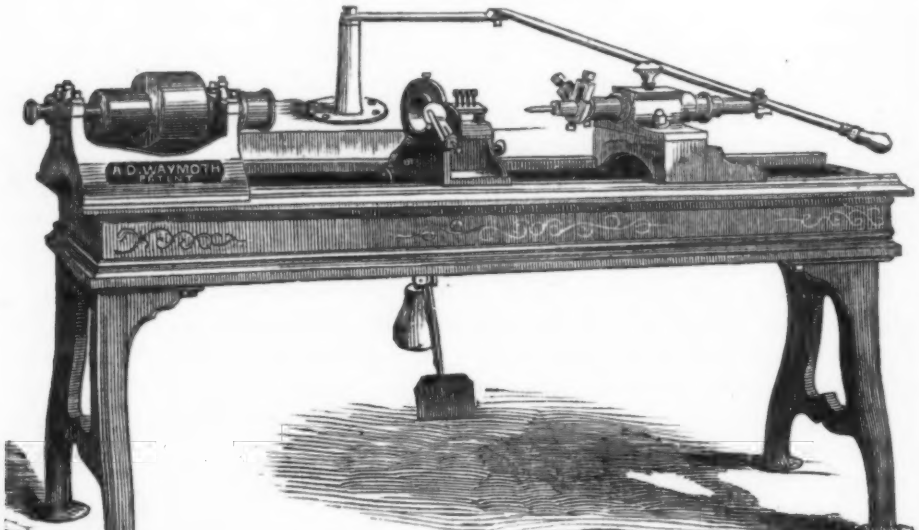
THERE is no end to the progress of inventive genius. Hoe's exploits, on a grand scale, seem to bid defiance to competition, but some happy thought, directed by accident perhaps, may result in throwing even his wonderful inventions into the shade. At the other end of the series, the contrivance of simple, portable printing machines, stands a recent invention of Mr. S. W. Francis, of Frankfort street, in this city. Mr. Francis has availed himself of the simple and efficient arrangement of the finger board of the pianoforte, each key standing for a letter, by which he plays out printed lines with the same facility with which the musician throws off his melodies. His hammers are types, and all the strings or wires he uses are for the management of his types and the sheet to be printed. As to speed, he states that he can print "seven letters in a

second." Two copies may be printed at the same time, on the principle of the letter copying press. The types may be of any size required. Mr. Francis believes that for editors, clergymen, etc., the use of this is preferable to that of the pen, and certainly for reporters and the like, aside from the inconvenience of transportation, it is a very useful invention, and clergymen whose sight is defective can hardly fail to find it of great convenience. For capitals, Mr. Francis uses the lower case, with a dash over the letter. Whether he can multiply his keys, so as to include a set of capital letters, without interfering with his mechanism, we are not informed. But he has contrived an ingenious and efficient machine, for which we hope he will receive a large pecuniary return.

American Institute.

We have made several visits, during the past month, to the Crystal Palace, and have carefully examined many of the articles on exhibition. The increase of machinery and of works of art, meanwhile, is very noticeable. We invite the attention of our readers to the following, and shall no doubt continue our descriptions in our next issue. There are thousands of useful and ingenious contrivances there quite worthy of the public attention.

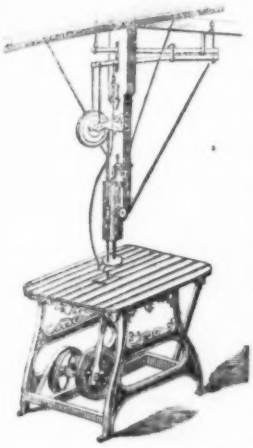
PATENT SPOOL AND BOX MACHINE.



Waymouth and Page, Fitchburgh, Mass., have one of the most ingenious machines we have ever seen. We have seldom seen one that works so rapidly and so well. It turns out some twenty-five wooden druggist's boxes per minute, though probably one man could not continue at this rate a long while. It is a most admirable invention, and can scarcely fail to be a good property to the patentee.

PATENT SCROLL SAW

L. Wright, of Newark, N. J., has a patent scroll saw, which for nicety of movement, and for the ease of its management, and its capacity in meeting any demand made upon it in the way of scroll cutting, excels anything we have seen. We have made reference to this in a former exhibition of the Institute. These machines are of different sizes, according to the nature of the work required of them. By a peculiar arrangement of the saw and the spring, the latter moves only a fraction of the distance of the movement of the saw. Hence a speedier motion is practicable than if the spring had a longer vibration, and this also enables the operator to avoid the shaking or jarring usually produced by rapid motion of a saw.



MEANS OF PRESERVING FERMENTED LIQUORS.

When cider, beer, ale, etc., are on tap, and the barrel is partly filled with atmospheric air, it is well known that constant and rapid changes in its condition are unavoidable, and if the bung is tight, no liquor can be drawn from the tap. These evils are readily obviated by a very simple contrivance of Mr. A. F. Boyd, of Zanesville, Ohio, who exhibits his elastic sack of thin India rubber, which is applied at the bung hole, or at the vent hole in the head of the barrel, and which expands as the liquor is drawn away, till it fills the barrel. It thus excludes all atmospheric air, prevents rapid fermentation, and secures a free discharge at the tap. A single bag may be made to serve for several barrels, all being connected by a tube.

PATENT ROPE AND CORDAGE MACHINE.

W. R. Dutcher, Lansingburgh, N. Y., exhibits a very neat and compact machine for the manufacture of rope and cordage. His improvement, which was patented June, 1857, consists of a self-adjusting thimble, applied in combination, with a grooved cone, through which grooves the yarns or strands run, and by which the yarns are kept at a proper tension. It is cheap, simple, and effective.

MAYES'S IMPROVED WASHING MACHINE.

This machine was patented in April, 1857, and consists of a sliding and revolving top, the under side of which, as well as the bottom of the tub, consists of a kind of corrugated surface, or a surface resembling one of boy's marbles, (though immovable,) by which the amount of friction is very much increased. The clothes are placed in the tub, the cover is allowed to drop down upon them through a central spindle, and is then made to operate in a kind of see-saw motion, by means of a handle upon the cover. It is by Josiah Mayes, Cohoes, N. Y. He claims that he can wash a dozen shirts in twelve minutes.

KING'S WASHING MACHINE,

Which we have favorably noticed in former volumes, is also on exhibition, and is offered by the inventor, Thos. King, of Westchester, as saving much labor, and as secure against tearing even the finest fabrics.

PUMPS, ENGINES, ETC.

This department, as usual, is very fully represented at this fair, and it is impossible to make a perfectly fair comparison among them. Each one may be specially commendable in a certain view, or for a specific purpose, and taking cheapness into the account, the less meritorious, viewed as a power, may be preferable for ordinary family use, or even for more important positions.

Cary's pumps, for the amount of water they will throw a large distance, or for rapid work, we have considered the best. They have often commanded the first premium. They are valuable for ships, and for all cases where great power is desired. For fire engines, they have been preferred over all others, although they won a hardly-contested field before our city fathers, a year ago, in competition with a pump, now on exhibition also, from Seneca Falls. We fully described Cary's pump in our number for July, 1854, page 44.

The chronometer steam pump of Ruperts, Crumbie & Co., Brooklyn, N. Y., will throw a stream of $\frac{3}{8}$ of an inch, 120 feet high, with a piston of $4\frac{1}{2}$ inches in diameter.

The steam pump of Taylor, Campbell & Co., of Brooklyn, N. Y., throws two streams, each $1\frac{1}{4}$ inches in diameter, to the height of 125 feet. But this requires a piston ten inches in diameter.

The steam pump of C. and G. M. Woodward, with a piston seven inches in diameter, delivers 240 gallons in a minute.

The steam pump of Guild, Garrison & Co., Williamsburgh, N. Y., with a piston seven inches in diameter, throws a stream 1 inch in diameter, ninety-six feet high.

Wm. D. Andrews, of this city, has a power pump in the palace, which throws a powerful stream, we should judge, five or six inches in diameter.

Reed and Birkbeck, of Jersey City, have a very excellent portable engine, simple, compact, and efficient, suited for any kind of farm business. It received the first prize medal at the Industrial Exhibition in Paris, in 1855, where it is said to have been tested by the most eminent engineers of Europe. It is manufactured, to order, from two horse to two hundred horse power, and costs, complete for service, from $350, upwards. A fifteen horse power, complete, costs $1,550. If not portable, the cost is much less.

The Forest and Agricultural Steam Engine Co. have also a portable steam saw for felling trees, cross-cutting wood, etc. The steam is led through flexible hose a hundred and fifty feet, if desired. The boiler is mounted on wheels, and can be moved by a yoke of oxen. Three men, it is claimed, with one of these machines, will cut from 15 to 40 cords of wood per day. A slight change in the machinery, produces a farm engine of from six to eight horse power, capable of application to a great variety of farm labor, as driving a threshing machine, shingle mill, corn mill, cotton gin, straw cutter, pumps, etc. The cost is from $800 to $1,300, the last including extra machinery.

The hand suction and force pumps are quite as numerous as the power pumps.

Carpenter's rotary force pump and fire engine may be worked by hand or steam power. It has no valves and requires no packing. It seems to be a modification of the device used by Cary. Its working machinery is contained in a hollow cylinder of some four or five inches in diameter, in which a revolving solid piston plays, moved by a crank or other convenient machinery. It is said, by the proprietor, to work efficiently in deep wells, mines, etc.

Dodge's Suction and force Pump is operated by steam or hand power, and is a capital pump. It is without valves or chambers, India rubber balls being substituted. Hence it requires no packing. Prices vary from $15, for cylinders two inches diameter and three inches stroke—often used as a green house engine, to $175, which will buy a small fire engine for villages, factories, or plantations. It is well worthy of public attention.

BENZOLE GAS LIGHT.

This old friend of ours shines as brightly as ever. The only difficulty with this, as we have repeatedly stated, is the want of benzole. The market, hitherto, has not been well supplied with it.

AIR BLAST OR BLOW PIPE.

This is a recent addition or annexation to the Benzole gas light, is very convenient and economical, and is worthy the attention of chemists and mechanics.

BRECKENRIDGE COAL OILS.

These oils are variously prepared for illumination, lubrication, etc., and the former produces a very brilliant light at a very moderate cost. It requires a lamp of peculiar construction. Coal wax, or paraffine, gas, naptha and asphalt, are produced from the same coal. The paraffine makes beautiful candles, as we recently stated. Dèpot in New-York, 98 Greenwich street. Manufactory, Cloverport, Ky.

SAFFORD'S PATENT WINDOW-SASH ADJUSTER.

This has been in use three years, on several railroads in New-England, and in steamboats, and has proved itself to possess several advantages. It is free from noise, excludes the dust when the window is closed, dispenses with catches, bolts, etc., provides for the shrinking and swelling of the wood, and is easily repaired. It consists of a small spiral spring, fixed in the edge of the sash, pressing against the casing. Hence it can be applied to any window. As long as the spring retains sufficient elastic force to resist the tendency of the sash to fall, it is certainly the most desirable of all the *adjusters* we have seen.

PLIMPTON'S COMBINED SECRETARY, BEDSTEAD, AND TOILET-TABLE.

This is not a new thing to our readers. It was one of the attractive features of the World's Fair, and has been exhibited in many State Fairs. As a tasteful and convenient combination of useful furniture, as its name imports, it is unrivalled.

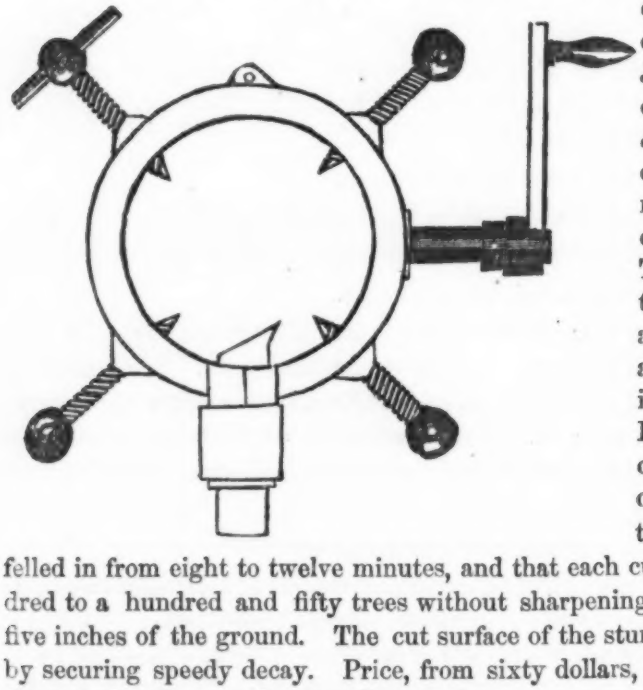
New Process in Forging Iron.

One of the most valuable processes in the forging of iron is that invented by Mr. Nasmyth, by which the certainty of the production of perfectly sound

cylindrical forgings, especially those of large size, such as shafts, axles, and the like, is increased. A wedge-shaped or V anvil is used, between the jaws of which the work to be hammered is placed. In this case, instead of a tendency to spread, so as to render the central portion of the metal less compact and solid, there is exactly the opposite effect, besides which the article is more easily kept under the hammer, and the scales or impurities which fall from the hot iron fall down into the apex of the V out of the way, thus removing the blemish and roughness which is caused by the scales collecting on the face of the anvil and being beaten into the surface of the metal.

Machinery for Cutting Down Trees.

We have by accident delayed a notice of the invention of Mr. G. C. Ehrsam, of this city, for cutting down trees, patented in June, 1856, and manufactured and sold by Eveleth & Bissel, Pine street. The cutting part of the machinery is represented in the engraving in the margin. This is made to encircle the tree, and is moved around it by strong and accurate gear work, which is connected with a crank. It is claimed that these cutters will do the work of from four to eight men; that a two-foot tree can be felled in from eight to twelve minutes, and that each cutter will fell from a hundred to a hundred and fifty trees without sharpening. It can be used within five inches of the ground. The cut surface of the stump will be left flat, thereby securing speedy decay. Price, from sixty dollars, (for machines two feet in diameter,) and upwards according to size.



Concentrated Milk.

The Winstead (Conn.,) *Herald* contains the following description of Mr. Gail Borden, jr's., process of concentrating and preserving milk:

"The milk, as it is received from the neighborhood farmers, (they being paid some two or three cents per quart for it,) in cans of six or eight gallons each, is at once deprived of its animal heat by placing the cans in ice-cold water. It is then, while in the cans, subjected to a heat of 160 to 190 degrees—a few degrees below the boiling point. Thus prepared, the milk is immediately transferred to the boiler, a huge receptacle of cast iron, of incalculable strength. While there subjected, by means of steam, to a heat of but 120 to 160 degrees, the air is withdrawn by two nicely adjusted air-pumps, and the process of evaporation commences. The vapor, as it forms, and this it does with surprising rapidity, within the vacuum, is as rapidly condensed and thrown off by means of the pumps, and so quick is the process that, according to our infor-

mation, a boiler of 500 quarts can be reduced to 125 quarts within one and a half hours. The liquid thrown off by the evaporation is clear, like water—has a sickish, unpleasant taste—in no way resembling milk, and its smell is slightly offensive. It is considered that the concentrated article is rendered purer by the process, to say nothing of its other advantages."

Recent Patents,

[ISSUED FROM THE U. S. PATENT OFFICE, FROM SEPTEMBER 8 TO OCTOBER 6, 1857.]

Agricultural.

Hulling Rice, Wilson Ager, Rohrsburg, Pa.—Cleaning Rice, same.—Mowing Machine, A. H. Caryl, Sandusky, O.—Raking Attachment for Reapers, same.—Same, Christian Yost, Leacock, Pa.—Apparatus for Grain and Grass Harvesters, J. W. Bultzly and Wm. Hobson, Pana, Ill.—Machine for Binding Grain, Jos. F. Black, Lancaster, Ill. This sheaves and binds the grain as fast as it is cut by the reaper. It is to be attached to reaping machines.—Reaping and Mowing Machine, J. G. Dunham, Raritan, N. J.—Harvester, A. B. J. Flowers, Greenfield, Ind. Grinding the machine by means of castor wheels, and adding an endless apron and a new discharging device.—Rake for Harvesters, Isaac Van Doren, Somerville, N. J.—Harvester, Samuel Pennock, assignor to himself and Morten Pennock, Kennett's Square, Pa.—Corn Sheller, J. J. Parker, Marietta, O.—Grain Drill, Henry Beitzell, Centerville, Ind.—Corn Sheller, A. M. Cook, Milford, Mass.—Mode of attaching Scythes to Snaths, Wm. T. Clement, Shelburne Falls, Mass.—Sod Cutters, Nelson Newman, Springfield, Ill.—Reaping and Mowing Machine, M. E. Ellsworth, Hudson, O.—Cultivator, Wm. J. Forshee, Indianapolis, Ind.—Corn Husker, A. M. George, Nashua, N. H.—Same, H. P. Gerrish, Sandoval, Ill.—Seed Planter, W. Y. Gill, Henderson, Ky. Same, A. M. Gould and Albert Flanders, Cambria, N. Y.—Plough, Manasseh Grover, Clyde, O.—Hill-side Plough, A. J. Hardin, Shelby, N. C.—Rake, A. A. & Andrew Hotchkiss, Sharon Valley, Ct.—Guard finger for Reaping Machines, Charles Howell, Cleveland, O.—Machine for Shucking and Shelling Corn, Sandford Kingsbery, Carrolton, Ga.—Gang Plough, L. S. Kingston and David Gore, Plain View, Ill.—Seed Planter, C. O. Luce, Brandon, Vt.—Seeding Machine, Daniel and A. S. Markham, Monmouth, Ill.—Seed Planter, Hosia Willard, Vergennes, Vt.—Plough, Thos. Sharp, Nashville, Tenn.—Corn Sheller, Ancil Stickney, Concord, N. H.—Corn Husker, W. H. Smith, Newport, R. I.—Seed Sowing Machine, Wm. C. Squier, Rockford, Ill.—Balancing Threshing Cylinders, Damon R. Averhill, assignor to himself, James F. Davis, and Henry Twitchell, Pulaski, N. Y.

Metallurgy and Manufacture of Metals.

Socket for Bolts, H. W. Collendar, New-York.—Pointing Wire, C. Jillson, Worcester, Mass.—Lock, H. W. Covert, Roxbury, N. Y.—Same, J. L. Hall, Cincinnati, O.—Nut Machine, S. H. Whitaker, Cincinnati, O.—Wrench, H. D. Blake, New Hartford, Ct.—Bit Holder, Ben. B. Hill, Chicopee, Mass.—Spike, Orin Newton, Pittsburgh, Pa. Constructed with concave sides, etc.—Wire Fences, J. B. Reyman, Bloomington, Ill. A mode of bending or kinking the wires.—Manufacture of Metallic Squares, Samuel Darling, Bangor, Me.—Saw filing Machine, Harley Stone and J. S. Cole, Blackstone, Mass.—Curry-comb, N. C. Harris and Alonzo Butler, Poultney, Vt.—Melting and Refining Iron, G. P. Miller and Hugh Dougherty, Lancaster, Pa.—Power Looms for weaving wire cloths, E. B. Bigelow, Boston, Mass.—Cutting Metal Caps for nail heads, Zachariah Walsh, assignor to Cornelius Walsh, Newark, N. J.—Stove Cover Stand, Hiram Carsley, Lynn, Mass.

Manufacture of Fibrous and Textile Substances.

Hardening Hat Bodies, Joseph Booth, Newark, N. J.—Making paper pulp from ivory, William N. Clark, Lancaster, Pa.—Treating fibrous and textile substances, Julius A. Gillson, Poughkeepsie, N. Y., and Henry Whitney, New-York. In a perfect vaccuum for extracting coloring matter, grease, etc.—Treating cotton and linen waste, Eben Norton Horsford, Cambridge, Mass. The use of acid to dissolve metallic particles in cotton and linen factory waste.—Harness for Looms, George Matoon, Chicopee Falls, Massachusetts. A mode of making a harness so that its lease and knot shall be below its eye, and the threads of each loop be caused to pass against one side of their shaft or bar instead of being caused to embrace opposite sides of it, namely, first knitting the harness with a lease at top and one at bottom, or one above as well as one below each eye, and subsequently changing the upper shaft so as to pass it between the several loop threads of the upper side of the harness in such manner as to make both threads of each loop pass against one side of the shaft. —Preparing tracing muslin, Jesse K. Park, Marlborough, N. Y. The use of the oil of Palma Christi, or of castor oil, alone or as an ingredient, in the composition for increasing the transparency of tracing muslin.—Carding Engine, Wm. H. Walton, Brooklyn, N. Y., and G. H. Phinney, New-York. The use of a rotary brush for stripping the main cylinder in combination with a lever or its equivalent.—Sewing Machine, Edward A. Jenks and John Underwood, Lowell, Mass. A new kind of looper and a spring feed piece, with its pressure guide or sheatn, etc.—Hemp Brake, Conrad Simon, Louisville, Ky.—Coating hose pipe, Charles R. Hinckley, Stonington, Ct. Constructing a hose pipe of textile and fibrous materials, with an internal coating of vulcanized India rubber, first applying the rubber outside, and afterwards inverting the same by drawing it over and through a metallic cylinder.—Cork sole stuff, William Johnson, Brooklyn, N. Y. The making of cork cloth, by said process, for inside soles and lining of boots, shoes, and other articles, for which solid sheet cork has been used.—Machine for measuring cloth, Wm. Y. Wythes, St. Clair, Pa.—Machine for forming and hardening hat bodies, A. C. Arnold, Norwalk, Ct.—Machine for packing wool, Chas. Carlisle, Woodstock, Vt.—Curtain Rollers, D. N. B. Coffin, Jr., Newton Centre, Mass.—Machine for Packing Wool, Albert Dorr, Orleans, Mich.—Sewing Machine, Millford H. Nettleson and Charles Raymond, Bristol, Ct.—Same, E. H. Smith, New-York.—Machine for picking cotton in the field, Jos. W. Thorn, Courtland, Ala.—Sewing Machine, Wm. C. Watson, assignor to himself, Geo. H. Wooster, and Ira W. Gregory, New-York.

Chemical Processes, Manufactures, etc.

India rubber paint, Wm. & Wm. A. Butcher, Philadelphia. A composition for making a water-proof paint.—Mastic Roofing, Wm. H. Carver, Covington, Ky, and J. Beekley, Cincinnati, O. "The precise manner employed of mixing and compounding the ingredients composing the cement, when combined with the proportions of ingredients, as specified, by which process of mixing and compounding and combination of ingredients, and applying the cement to use, we are enabled to decompose or destroy the ammonia contained in the coal tar, to prevent it from destroying the cement and eating the canvas on which it is spread, and at the same time produce a cement that is not brittle and subject to cracking, but hard enough to resist forces that roofs are generally subject to, and at the same time elastic enough to expand and contract to suit all conditions of heat and cold, and make the cement water-proof."—Preserving alkalies, George Thompson, East Tarentown, Pa. The use of metallic boxes, united with refusible cement, for putting up caustic alkalies in small quantities.—Cooler, W. F. Messenger and Henry Rehahn, New-York. Adapted for casks containing liquids on draught.—Composition for covering meats, John J. Bate, Brooklyn, N. Y., and Francis S. Lowe, Jersey City, N. J.

The use of shellac, varnish and beeswax, etc., in composition.—Lard rendering kettle, John J. Bate, Brooklyn, N. Y.—Preparing roofing cements, Robert T. Havens, Casstown, O.—Factitious oils, Joseph W. Harman, Elizabethtown, N. J. The use of the residuum of candle factories in the manufacture of compound oil.—Separating oily matter from water, James Naughten, Cincinnati, O.—Cooler for breweries, Adolph Hammer, Reading, Pa.—Drip pots for sugar houses, John Turl, New-York.—Brewer's Coolers, Adam Wood, Pittsburgh, Pa. A double bottom of corrugated iron, through which cold water constantly runs.—Making white lead, Henry Hannen, Dubuque, Iowa.—Bronzing liquors, Henry Hoffman, New-York.

Calorifics.

Gas Generator, John Butler, Brooklyn, N. Y Generating gas in a retort over the surface of melted lead and other fusible metal.—Illuminating Gas Apparatus, Chas. B. Waring, Poughkeepsie, N. Y.—Gas Burner, Wm. W. Batchelder, New-York.—Steam Heating Apparatus, Edmund Gibbs, Madison, Wis.—Gas Burner, William H. Lindsay, Brooklyn, N. Y.—Apparatus for roasting on cooking stoves, ranges, etc., Samuel Peirce, Troy, N. Y.—Protecting buildings from fire, Thomas Odion, Portsmouth, N. H. By means of a portable screw.—Hydro-carbon Vapor Lamp, Isaac Suggitt, Providence, R. I.—Hot Air Registers, Sylvester J. Sherman, New-York.—Coal Stove, Wm. H. Stinson, Baltimore, Md.

Steam and Gas Engines, &c.

Operating valves of steam engines, Robert H. Fletcher, Brooklyn, N. Y.—Valve gear for oscillating steam engines, John C. Penninghu, Paterson, N. J.—Arrangement of passages and means for working steam valves, by the direct action of steam, Barnabas Roberts and Alex. Crumbie, assignors to themselves and John Benson, Brooklyn, N. Y. An arrangement of the steam channels, which are opened and closed by the travel of the main piston, connecting the steam chest and cylinder as described in combination with pistons of equal areas, or their equivalents, etc.—Metallic packing rings for steam engines, P. Clark, Rahway, N. J. A number or series of layers or lamina of sheet metal, with flexibility enough to be bent round a rod, etc.—Rotary Steam Engine, D. C. Turner, Aztalan, Wis.—Valve gear for oscillating steam engines, N. W. Wheeler, New-York.—Steam Pressure Guage, Henry Bates, New-London, Ct.—Steam Boiler, Wm. M. & Jonas B. Ellis, Washington, D. C.—Variable eccentrics for operating the valves of steam engines, S. L. Wiegand, Philadelphia.—Tank for Locomotives, John Kimball, Concord, N. H., assignor to Robert Hale, Roxbury, Mass.—Steam Generator, Julien F. Belleville, Nancy, France.—Locomotive Cow-Catcher, James Mitchell, Osceola, Iowa.

Navigation and Maritime Implements.

Ships' Pump, Abraham Coates, New-York.—Feathering paddle-wheels, Lewis T. Howard, Smith's Mills, Miss.—Reefing and furling sails, G. W. La Baw, Jersey City, N. J., assignor to himself and Chas. A. Durgin, New-York.—Lifeboats, M. M. Camp, New-Haven, Ct.—Diving Apparatus, George Williamson, Brooklyn, N. Y.—Life-Preserver, Charles J. Banker, New-York.—Marine Propelling Apparatus, Ethan Campbell, Boston, Mass., assignor to Wm. P. Page, Cambridge, Mass., and Edward F. Hodges, Boston.

Civil Engineering, Architecture, &c.

Excavator, Ze Butt, Lincolntown, N. C.—Sustaining Window Sash, Edward T. Briggs, Salem, Mass.—Street Sweeping Machine, John Critcherson, Boston, Mass.—Bridge, Charles H. Earle, Green Bay, Wis. A bridge so constructed as to rise and fall with the change of water level, being self adjusting.—Safety fuse compositions, Edward Gomez and Wm. Mills, New-York.—Operating Window Sash, John C. Grant, Salem, Mass.—Controlling cog gear sash balance, John Mac Murtry, Lexington, Ky., assignor to Dan. Wiehl, Fayette Co., Ky.—Apparatus for loading logs on wagons, Philander Gilbert, Alexandria, O. A

portable frame combined with a windlass.—Connecting and disconnecting the blocks of iron or other pavements, Barzillai C. Smith, Burlington, N. J.—Trussed Bridge, Abram S. Swartz, Buffalo, N. Y.—Approach Opening Gate, Charles A. Howard, Pontiac, Mich.—Opening and closing Vertico-lateral folding gates, Francis Thrasher and H. B. Horton, Akron, O.—Rock Cutting and Drilling Machine, Wm. Plumer, Boston, Mass.—Extension Elevator, Pierce Porter, Hookset, N. H.—Oil pressing machinery, Wm. Wilbur, New-York.

Land Conveyance.

Railroad Car Seats, J. H. Swan, New-York.—Carriage Prop, Chauncey Thomas, West Newbury, Mass.—Window for Locomotives, Henry Skinner, Fulton, N. Y.—Lubricating Carriage Axles, Albert A. Vedder, Lysander, N. Y.

Hydraulics and Pneumatics.

Hydraulic Engines, John D. Heaton, Dixon, Ill.—Pump, J. D. West, New-York.—Regulating the velocity of wind-wheels, Francis Peabody, Salem, Mass.—Shower Bath, Wm. Miller, Walthem, Mass.—Wind-wheel, Wm. Zimmerman, Quincy, Ill,

Grinding Mills, and Mill Gearing.

Grinding Mill, Aaron Arnold, Troy, N. Y.—Flour Bolt, N. Bauman, Elmore, Ill.—Hanging Mill Stones, Edwin Clark, Lancaster, Pa.—Bearings for mill stone drivers, same.—Horse Power, G. E. Burt, Abram Wright, and G. F. Wright, Harvard, Mass.—Drilling and Milling Machine, Wm. D. Sloan, New-York.—Journals of axles with friction rollers, George A. Prentiss, Cambridge, Mass.

Lumber, Tools for Preparing, etc.

Spoke Machine, Samuel Lord, Perry, Ga.—Tenoning Machine, Perry Putnam and John E. Crone, Lowell, Mass.—Manufacturing Shingles, J. E. Young, Augusta, Me.—Lathe for the manufacture of clothes-pins, etc., John Humphrey, Keene, N. H., assignor to himself and Amos E. Perry, Harrisville, N. H.—Filing and setting saws, Ansby C. Smith and Joseph K. Creighton, East Birmingham, Pa.—Holding and setting logs in circular sawing machines, James H. Batchelder, Rome, Mich.—Cutting Bungs, Josiah Kirby, Cincinnati, O.—Attaching adjustable handles to joiners' planes, Thos. D. Worrall, Lowell, Mass.—Saw Filer, J. J. Near, Oneida, N. Y., assignor to Eli Near and Levi Vandusen, Madison Co., N. Y.—Joiners' Bench, J. W. Mahan, Lexington, Ill.—Sawing Shingles, Jesse Gilman, Nashua, N. H.—Wood Boring Machine, Lafayette Stevens, assignor to Wm. L. Gibson, Elmira, N. Y.

Stone and Clay Manufactures.

Brick Machine, G. J. Washburn, assignor to himself and Anson L. Hobart, Worcester, Mass.—Manufacturing Pottery Ware, Philip Pointon, Baraboo, Wis.—Brick Press, E. H. Bellows, Worcester, Mass.

Leather, Tanning, Dressing, &c.

Belt Tool, David A. J. Lamson, Cherry Valley, Mass.—Improved boot and shoe sole cutter, Parker Wells, Middletown, Mass., assignor to Samuel Mower, Boston, Mass. A cutter with a yielding slide.—Edge-plane for trimming boot and shoe soles, J. A. Dunham, North Bridgewater, Mass. A cutting blade and guard that, together, forms a circle or very nearly, and so arranged as to be set up to its guard as fast as it becomes worn, by simply turning said cutter on its center.—Stirrups for riding saddles, James Neill, Yorkville, N. Y. An arrangement for releasing the stirrup from its strap when the rider falls.—Hame tug fastening, Wm. J. Lockwood, Sturgis, Mich.—Manufacture of the uppers of boots and shoes, without seams, Samuel Middleton, England.—Hollow metallic lasts, Sylvanus H. Whorf, Malden, Mass. A last with a yielding spring instep.

Household Furniture, Machines and Implements for Domestic Purposes, &c.

Kneading dough, Hiram Berdan, New-York. A rotating "flipper" to rotate

through the dough, cutting it, etc.—Invalid Beds, George H. Clark, Pontiac, Mich.—Fly Trap, S. R. Wilmot, Watertown, Ct.—Spring bed-bottoms, Henry J. Smith, Washington, D. C.

ARTS—POLITE, FINE, ORNAMENTAL, &C.

Expanding spectacle bows, George N. Cummings, Hartford, Ct.—Painter's Easel, George Gillett, Little York, N. Y.—Watchmaker's Lathe, Roswell H. St. John, Bellefontaine, O.—Diaphragm for photographic cameras, J. R. Werner, New-York.—Type setting and distributing machine, Timothy Alden, New-York, (see another page.)—Safety clasp for bracelets, etc., Isaac Hermann, New-York.—Sleeve Fastener, David C. Peacock, Brooklyn, N. Y.—Hand Stamp, T. J. W. Robertson, New-York.—Machine for distributing type, Wm. H. Mitchell, Brooklyn, N. Y.—Pencil Sharpener, J. W. Strange and Samuel Darling, Bangor, Me.—Fastening for Jewelry, John T. Folwell, Philadelphia.—Reed stops for musical instruments, Amos B. Hughes, Philadelphia.—Setting diamonds, etc., Isaac Lindsley, Providence, R. I.—Stemming and polishing peanuts, Samuel Sheppard, Nashua, N. H.—Fountain Pen, A. F. Warren, Brooklyn, N. Y.

FIRE ARMS, &C.

Ball Cartridges, Lemuel Wells, Astoria, N. Y.—Safety fuse compositions, Edwin Gomez and Wm. Mills, New-York.

MISCELLANEOUS.

Burglar's Alarm, Simeon Coon, Ithaca, N. Y.—Portfolio, or music Stand, Augustus Eliaers, Boston.—Fly Trap, S. R. Wilmot, Watertown, Ct.—Fire Escape Ladder, Henry Lorvenberg, New-York.—Apparatus for opening oysters, Waldren Beach, Baltimore, Md.—Cribs of horses stables, William Croasdale, Hartsville, Pa.—Burglar's Alarm, E. M. & J. E. Mix, Ithaca, N. Y.—Awning frame for horses, N. Pullman, New-Oregon, Iowa.—Fastening for metallic bands of cotton bales, etc., Charles J. Provost, Sardis, Ala.—Mode of attaching elastic soles to horse shoes, Wm. Somerville, Buffalo, N. Y.

Recent Foreign Inventions.

New Process for Preserving Timber.

AMONG the expedients adopted for the purpose of preventing the decay of wood, the following, by the eminent French chemist, Dr. Boucherie, seems worthy of special attention. The following is his method of operation:

After the tree has been felled, a saw-cut is made across the center through about nine-tenths of the section of the tree. The tree is then slightly raised at the center by a lever or wedge, so as to open the saw-cut a little; a piece of string or cord is placed all round the edge of the saw-cut, and on lowering the tree again, the cut closes upon the string, which thus forms a water-tight joint in a simple and effectual manner. An auger hole is then bored obliquely into the saw-cut from the outside, into which is driven a hollow, wooden plug, to which a flexible tube is fitted. The tube communicates with a raised cistern, placed at a height of from 30 to 40 feet above the timbers that are to be prepared, and containing a solution of sulphate of copper. When the preparations have been completed, the liquid flows through the tube into the saw-cut in the tree, and forces itself along the log in both directions, driving the sap out at each end. As soon as the liquid has reached the ends of the log, the process is finished and the log is ready for use.

If the timber is required of the entire original length, the cross saw-cut at the center can not be made, and instead thereof, a cap, consisting of a piece of

board, ¾ inch or 1 inch thick, is fixed on the end of the log by screws or clamps, and made, by means of a piece of string or cord, to enclose a space at the end of the tree. As the direction of the grain in the board forming the cap is transverse to that of the tree, the liquid can not pass through the cap, and the injection proceeds from one end of the log to the other.

In order to ascertain when the process has been continued for a sufficient length of time, so that the sap has been all expelled and replaced by the solution of sulphate of copper, a piece of prussiate of potash is rubbed on the end of the timber while in the damp state, and if the solution has reached the end of the log a deep reddish brown stain is produced, showing that the timber is thoroughly impregnated with sulphate of copper.

The sap expelled from the timber in the process of impregnation contains at most only 1-1000th part of organic matter in solution, and accordingly no inconvenience is experienced in employing it as a solvent for the sulphate of copper. It is, indeed, preferable to many kinds of spring water, particularly those containing lime, which decompose a considerable proportion of sulphate of copper. Troughs are therefore laid under the ends of the logs to catch the sap and the waste solution, which are conducted to a reservoir to be pumped up to the cistern and mixed with sulphate of copper to the proper strength.

The solution that has been found most effectual for preserving the timber is composed of 1 part by weight of sulphate of copper, and 100 parts by weight of water. The strength of the mixture is ascertained by a hydrometer, having a properly graduated scale. The specific gravity of water at 60° Fahr. being 1000, if 1 per cent. of sulphate of copper is added, the specific gravity of the mixture will be 1006, nearly.

The sooner the trees are prepared after being felled, the better, and it is therefore advisable to prepare them as near as possible to the place where they are felled. Trees felled at any time between November and May, may be prepared in May; but those cut down in May, or at any time from May to the end of November, should be prepared within three weeks from the time of being felled.

In the course of the operations carried out in the practical application of this process, the following facts have been ascertained:

All kinds of wood do not absorb equally, and the absorption of the liquid is more rapid in the sappy parts than in those nearer the heart of the tree.

The quantity of the solution forced into the timber is equal in cubic measure to at least one-half of the cubic dimensions of the timber. When a solution containing about 2½ lbs. of sulphate of copper in every 22 gallons, has been forced through a log, it appears, after allowing for the sulphate carried off by the sap, that every 35 cubic feet of wood have retained from 11 lbs. to 13 lbs. of sulphate of copper.

For a log about 9 feet long, the process of impregnation occupies two days, when the timber is newly felled and the solution is supplied by a head of about 3½ feet. If the wood has been felled three months, three days are required; and if four months, four days are necessary to complete the impregnation.

Of different kinds of tree, those which possess most moisture are most easily penetrated by the solution; and of the same kind, those which have grown in the dampest soils. Hence the least valuable and cheapest kinds of timber are precisely those which give the best results when impregnated with the sulphate of copper.

Improvements in Castors.

By Thos. Bird and Thos. Rose, Manchester, Eng.

This invention consists in making the lower or rolling part of castors in the form of spheres, globes, or balls, of any convenient dimensions, having their upper parts pressing against one or more smaller balls or spheres, the whole being enclosed in suitable standards or frames, either with or without anti-fric-

tion rollers, pulleys, or balls. The frame of the castor is provided with a screw, in order to lengthen or shorten it, when required to adjust the article of furniture to a proper height, and if the surface of the floor is uneven, to adjust it to the various inequalities, and give it a perfect level, which arrangement will be found peculiarly applicable to pianos and similar articles.

In this improved castor the large sphere or ball is made of glass, and the small one of ivory, or similar material,—thus making it a double spherical insulator peculiarly applicable to pianos, harps, or other musical instruments.

Improvements in the Construction of Axles and Boxes of Carriages for Common Roads.

By Richard Emery, St. James's Square.

This invention consists in so constructing the axles and axle-boxes of carriages for common roads that the wear on the bearings of such axles and boxes will be uniform, and that the lateral lashing against the back and front of such axle-boxes will be provided for in a better, cheaper, and more simple way than is common in axles and axle-boxes of the present known constructions.

The improvements consist, firstly, in having the front and back bearings parallel with the axis of the axle, or in other words, parallel with a center line drawn through the axle bearings, which parallel bearings, although of different diameters, will be always uniform in their wear; the surfaces being equal both in the bushing, for the bearing in the axle-box, and the bearing part of the axle-arm.

Secondly, in constructing the axle-boxes of any known or suitable metal, and bushing them with a different metal from that which the box is made of.

These bearings may, if of steel, or case-hardened iron, or hard compositions, be screwed or driven into their places, or shrunk in, or be run in, if of the softer compounds or simple metals.

New Mode of Applying Metals to Surfaces of Wood, Pottery. etc.

The process for coating vitrified or enamelled surfaces is as follows: Suppose the object to be treated by the process to be a china vessel, cover first that part of it which is intended to receive the coating of metal with a layer of varnish, or gold size; and when the layer of varnish has become sufficiently dry, apply copper leaf to it, so as to cover it well, and leave the whole to dry completely; carefully remove all dust from the surface, and place the vessel so prepared in a bath containing a solution of sulphate of copper. By submitting now the vessel so prepared to the action of a galvanic battery, as usual a deposit of copper takes place; and when the deposit has acquired a sufficient thickness (for which purpose about 60 hours immersion will be necessary) the vessel is taken out of the bath, cleaned, and smoothed by filing off the asperities, and finished with pumice-stone, to be finally polished as required.

The coppering may also be effected by another process, which is considered to be as efficacious, and more convenient and easy than that just described. It consists in making use of German gold dust or bronze powder containing much mercury; this metallic powder is a very good conductor. It is to be triturated with common salt. When well mixed, it is put into an earthen basin, and hot water is poured over the mixture; the salt then dissolves, and the copper dust is left to settle. The deposit thus formed is collected, dried, and used as a conductor for the metallic coating to be given to the vessel.

By a similar process the silvering of looking glasses can be preserved from the effects of dampness,—the glass being thus rendered at the same time less liable to break. It is done as follows: Melt together equal quantities of bees'-wax and tallow: when the mixture has become completely fluid and quite homogeneous, the glass is dipped into it and taken out immediately; it is then allowed to cool, and the parts which are required to be coppered are prepared with metallic powder, and treated in the same manner as before mentioned.

For metallizing objects the surface of which are soft, such as animal bodies, the following process is adopted: First stop all the apertures with modellers' wax, or some other convenient material, and place the dead animal body, which may be a human corpse, in a suitable attitude, and spread over the skin, which is of a greasy nature, a layer of suitable metallic salt; pulverized nitrate of silver being used by preference. This salt then penetrates into the pores of the skin, and when a sufficient quantity of nitrate of silver has been thus applied to the body in question, by means of a brush or otherwise, it is then put into a bath of sulphate of copper, and the galvanic current being established, the whole surface soon becomes covered with a metallic deposit of copper of the requisite thickness; the result being a metallic mummy.

Similar objects, either of china or earthenware, may be covered with iron instead of copper by preparing them as above described, and plunging the said objects in a bath containing a solution of protosulphate of iron. The objects which have been thus coated with copper, may receive afterwards another coating of either silver, gold, or platinum.

This is applicable to vessels of china and earthenware, pottery, crystal, glass, and the like, and also to soft or supple surfaces, as leather, India rubber, gutta percha, and "other organic substances."

Improved Filter or Drainer.

By Frederic Albert Gatty, Accrington, Lancashire, Eng.

These improved filters or drainers are made by preference of wood and of a square shape, but they may be of other shapes, and other materials may be used. The sides and bottom of the filter or drainer are furnished with narrow slots made with a circular saw or otherwise. When the filters or drainers are made of wood it is requisite to make the slots in a line with the grain of the wood. They may be rendered suitable for filtering different materials by increasing or diminishing the width of the slots, according to the fineness or coarseness of the substances to be separated from the liquids. In some cases the slots of these filters or drainers may be filled with animal charcoal or other purifying material. These improved filters are said to possess considerable advantages over those in general use, which are usually made of woolen or other fabric, and are soon injured by being continually wet, and by the action of acids. The improved filter, after being in operation, is easily cleaned by passing a suitable instrument through the slots, to free them from any substances adhering thereto.

Mining in Prussian Westphalia.

It is asserted that in Prussian Westphalia no less than sixteen mining and smelting companies have been formed since 1848—twelve of them since 1854, showing a very considerable progress. In 1853, this province produced but 603,525 cwt. of iron, and 118,064 cwt. cast iron ware, while in 1854 the product was 709,110 cwt. pig iron, and 332,061 cwt. cast iron ware, showing an increase of 73 per cent. in one year. In 1855 the province produced 1,513,039 cwt. pig iron, and 1,126,052 cwt. bar iron.

Tenacity of Metals.

As the results of numerous experiments in regard to the tenacity of metals, M. Baudrimont has arrived at the following conclusions: That the tenacity of metals varies with their temperature; it generally decreases, though not without exception, as the temperature rises; with silver, the tenacity diminishes more rapidly than the temperature; with copper, gold, platinum and palladium, it decreases less rapidly than the temperature; iron presents a very remarkable case; at 212 degrees its tenacity is less than at 32, but at 392 degrees it is greater than at 32.

THE FAMILY CIRCLE.

Scientific.

Chemistry for the Million.

THE figures in the following tabular view denote the proportions of each ingredient and of the compound. Thus, read the first;—8 lbs. of oxygen, combined with 1 lb. of hydrogen, form 9 lbs. of water; and so the others, putting "combined with" after the first word in each line, and the word "form" after the second.

8 OXYGEN 1 HYDROGEN 9 WATER.

Water with other substances forms *hydrates*, as hydrates of lime, of iron, etc.

16 OXYGEN 6 CARBON 22 CARBONIC ACID.

Carbonic acid forms carbonates, as carbonate of lime, (chalk, marble, lime-stone,) carbonate of soda (washing soda,) bi-carbonate of soda, (cooking soda) etc.

14 NITROGEN 3 HYDROGEN 17 AMMONIA.

The three compounds above, water, carbonic acid, and ammonia constitute a very large part of the food of all growing plants. Nothing could grow if deprived of either of them. Decaying plants and animals are always giving them off; and living, growing plants are always receiving them.

WATER.—*Its agencies in the germination of seeds, in conveying food for the growth of plants, and in bringing them to maturity.*

Three conditions are essential to germination, air, warmth and moisture. Give to a seed that free circulation of air, which naturally takes place in a cultivated soil, and give it a genial warmth, yet without moisture it will not germinate. Most seeds can adapt themselves to various degrees of moisture. A kernel of corn, for instance, with the requisite air and warmth, will sprout and grow vigorously, whether there be much or little water in the soil. But without some moisture it will lie dormant, though ever so well supplied with air and warmth.

As soon as the germ, or minature plant, contained in the seed, begins to swell, it does so, manifestly, by receiving into itself the material for its growth. That material it receives from the seed itself. As yet it has no organs for receiving it from without. The seed is nothing else than a young plant, microscopically small, but containing all the parts it will have when grown, closely wrapped up, in a membraneous envelop, together with a convenient supply of food, to furnish material for its growth, till it can put forth roots and leaves, and draw from the soil and air.

This food, so snugly enveloped with the germ, is mostly *starch*. A little of it is *gluten*, and a very little *ablumen*, the former containing no nitrogen, the latter being a nitrogenous substance. But plants absorb no food that is not in a limpidly fluid state—perfectly dissolved either in air or water. Now starch is insoluble in water. It will form with water a kind of jelly, but not a transparent solution, and hence it can not be taken into a plant as food so long as it remains starch. That is a condition favorable to its preservation till wanted for the young plant, but before actually feeding the germ, it has to be changed into some thing that is soluble in water, and that *something* is sugar.

Every one must have noticed that when a seed sprouts, it becomes sweet. This is because the starch is turned to sugar. Out of the nitrogenous substances in the seed is formed a new substance, called *diastace*. This diastace operates upon the starch, turning it into sugar. But this change from starch to sugar can not be effected with-

out the aid of water. If it could, nothing would be gained; for the germ could not feed and grow upon dry sugar any more than it could upon dry starch. But the sugar will dissolve in water, whereas starch is insoluble. Water, then, is essential, both as a means for the formation of sugar, and as a *solvent* for it when formed. It is not proposed here to investigate all the secrets of germination, nor to state all that is well known on the subject. Enough has been said to show the importance of water to the first step in plant growth. As soon as the germ begins to swell, it must have oxygen, hydrogen, carbon and nitrogen, and a few mineral substances, all of which are contained in the seed; but not one could find its way into the organism of the germ without the agency of water.

As with the commencement so with the continuance of plant growth, water is a most important agent, Some plants require more of it; some less. Strawberries, if the soil is porous, and made up largely of decaying vegetable matter, can hardly have too much at fruiting time; Indian corn, at the time of ripening, can hardly have too little. But whatever water each plant, at its various stages, requires, is a necessity. Not only is all plant food prepared, as in the case of the sugar made from starch, by the agency of water, and dissolved in water, but water becomes the carrier of the food, first from the soil, at short distances, to the roots, and then along the roots, and through the organism of the plant.

On the first of these points others differ from the view here taken. Liebig seems to consider that plant food is perfectly immovable in the soil, except so far as it is moved by the plow and other implements, or is seized by living roots in actual contact with the portion of soil in which it is contained. He would have it, that the roots go after food, and that is undoubtedly so. A grape root will run towards a decaying bone, when but for the bone it would have traveled in another direction; and when it approaches the bone, will divide itself into a thousand fibres, and attack the bone on every side. But while it is clear that a root will turn out of its course to come upon a richer source of food, is it not true also, that the food, by a kind of reciprocal action, is drawn towards the root?

We know that water, by a natural law, passes downward in the soil. But by another law of nature, that of capillary attraction, it will, under certain circumstances, travel upwards. For instance, if the sun evaporates the surface water, then the water below will rise to take its place. Or if you put into a moist soil a shovelful of soil that is perfectly dry, the water around and below it will travel out of its course to supply it with moisture, till it becomes about equally moist with the surrounding soil. It is evident that the movement of water in soil is downward, upward, lateral or sloping, according to various causes operating upon it, and that its tendency always is to an equal diffusion of moisture. It is evident also, that water, in passing from point to point in the soil, always holds in solution more or less of plant food. Now, while this plant food attracts the roots, it is reasonable to suppose that the roots attract it. We can hardly conceive of an attraction that is not mutual. If I give my hand to a drowning man, the pull between us tends as much to draw me into the water as to draw him out of it. So it is hard to see how the plant food can attract the roots without being attracted by them. Whatever may be the cause of the attraction, whether it is owing to different electrical states of the living root and the dead matter surrounding it, or to some other cause, it would seem that it must be reciprocal, that if the roots run after the food, the food, dissolved in water, runs after the roots, and that the place of meeting is not where either was an hour before; but at an intermediate point, a meeting half way.

Liebig seems to suppose that a root exhausts of plant food, or rather of the food

specially adapted to that plant, the portion of soil immediately in contact with it, but no other. To us it seems more reasonable to suppose that water, which is known to move in all possible directions in a soil, not only tends to equalize the plant food, where no disturbing influences, as of hungry roots for instance, prevent, but also that it acts as a carrier, transferring food from every possible direction to the roots.

That water acts as a carrier along the roots and throughout the organism of the plant, there can be no doubt. Of all plants, in a growing state, by far the largest portion is water. The quantity of water that a thrifty plant passes through its organism in a day is great, often many times its own weight. Why is this? Not merely to keep its average amount of water, for then it would not be, as it is, thrown off by the leaves into the air. Its errand through the plant, from the earth to the air, is to carry up, and deposit by the way, distributing wherever wanted, what is to compose the solid parts of the future plant.

If any thing more were wanted to prove that water acts as a carrier of food to the roots, consider this: any plant, a maple tree for instance, may be regarded as a self-acting pump. A wide-spread maple, thrifty, and standing in a rich soil, on a dry day in June, pumps up from the earth a hundred gallons of water, nearly as quick as we, or any of our readers, would care to pump as much from a deep well. Ninety-nine gallons, at least, it throws, in the same time, into the air, as watery vapor—not exactly watery vapor, for then it would be seen, but water dissolved in air, a perfect solution of water in air being that state in which the air appears clear and transparent, while an imperfect solution of water in air implies that state in which the water, not being wholly dissolved, becomes visible to the eye, as clouds or fog. This may be further illustrated, by comparing it with solutions of solids in water.

Throw a bit of sugar, or salt, into a tumbler of pure water. It dissolves. Does the appearance of the water change? Not at all. It is as clear and transparent as ever. You see no sugar or salt, yet you know it is there. But it has diffused itself equally throughout the water, hidden itself away among the particles of water, and become invisible. That is what is meant by a *solution*. Let the tumbler stand a few days till the water evaporates, and the sugar will be found at the bottom.

Again, put into a tumbler of water a teaspoonful of slacked lime. Not more than a thousandth part of it will be dissolved, for lime, unlike sugar and salt, is very little soluble in water. The rest gives the water a clouded or milky appearance. This is a *mixture*. Just so, in a foggy, damp day; what we see is a mixture of air and water, the water being but partially dissolved, like the lime mixture above, whereas in a clear day, there may be quite as much water in the air, but in the latter case it is perfectly dissolved, like the sugar or salt in the tumbler, and is, therefore, invisible. It is thus that the spreading maple, through its leaves, is constantly throwing immense quantities of water invisibly into the air.

But all this water comes from the ground. The extremities of the rootlets take it in from their several locations. From other points near, water inclines to the exhausted points, flows towards, and then through the roots, and up the pores of the trees, till most of it escapes from the leaves into the air. Now, when this water enters the roots it is, undoubtedly, limpid, free from any visible particles of sand or gravel; but it holds in solution a great variety of substances, which are to constitute both the organic and the inorganic parts of the future plant, or those which burn, and those which form the ash. We say, then, that inasmuch as it is known that the water, in a cultivated field, as it enters the roots of plants, is impure (a solution of various matters,) and that when it departs from the leaves it is free from those substances, it must have

brought them from the soil and deposited them for the growth of the plant. In a stalk of wheat, for example, the soluble silica is deposited as a covering for the straw, to give it firmness; the soluble phosphates, in the grain, to give it richness; and so the ammonia, the sulphur and other ingredients, to answer their various purposes, water being, in each case, the carrier of the substance to its appointed place.

One use of water in vegetation is that of washing the plant externally. The leaves and bark become clogged by substances often exuding from them, with the deposits of insects, and with dust adhering to them. A rain or a shower washes them effectually from these and other impurities. But the great and ever active agency of nature is that of dissolving, and carrying, and distributing the food, as required for the growth of the plant, and for bringing it to maturity.

FOR THE AMERICAN FARMERS' MAGAZINE.

THE WEATHER.

APPEARANCE OF BIRDS, FLOWERS, ETC., IN NICHOLS, TIOGA CO., N. Y., IN SEPTEMBER, 1857.

By R. Howell.

Place of Observation, 42 degrees North, on a Diluvial Formation, about 40 feet above the Susquehanna River, and 800 feet above tide, according to the survey of the New-York and Erie Railroad.

Sept.	6 A.M.	1 P.M.	9 P.M.			REMARKS.
1	57	82	60	West	Cloudy.	
2	54	84	58	South	"	
3	50	88	60	N. E.	"	
4	56	83	63	"	"	
5	58	88	64	West	"	Light rain at sunrise.
6	54	64	45	North	"	Considerable rain before daylight.
7	40	64	43	"	Clear.	Small frost seen in the morning.
8	38	71	49	South	"	Small frost seen on the hills.
9	41	79	58	"	"	
10	58	88	69	"	"	A few forest trees begin to turn red & yellow.
11	61	93	68	S.&N.	Cloudy.	Hard shower at dark from north with hail.
12	65	89	66	South	"	
13	66	81	62	"	"	Light shower between 7 & 8 P.M. Corn ripe.
14	63	86	68	"	"	
15	52	71	50	North	"	
16	41	73	55	West	"	
17	56	80	68	S.&N.	"	Hard rain before daylight. Two hard showers in the afternoon. Hard rain in evening.
18	58	58	44	North		
19	45	50	48	S.&N.	Cloudy.	Hard rain all day.
20	49	61	49	North	"	Quite hard rain before daylight.
21	43	62	47	N.&S.	"	
22	49	60	54	South	"	Hard rain all afternoon, commenced before 12.
23	43	57	43	North	"	
24	36	70	48	"	Clear.	
25	41	72	51	South	"	Leaves of forest trees turn red and yellow quite fast.
26	43	82	51	"	"	
27	44	80	59	"	Cloudy.	
28	53	56	51	North	"	Showery by squalls all day.
29	37	51	34	"	"	
30	26	58	39	"	"	First hard killing frost. Water in trough frozen over. Rain squalls in afternoon.

☞ "I NEVER knew," said Lord Erskin, "a man remarkable for heroic bravery, whose very aspect was not lighted up by gentleness and humanity.

METEOROLOGICAL.

CHAPMAN'S PRECALCULATIONS FOR ELEMENTARY CHANGES,

SIMULTANEOUS WITH THE "MONTHLY RAINBOW AND METEOROLOGIST,"

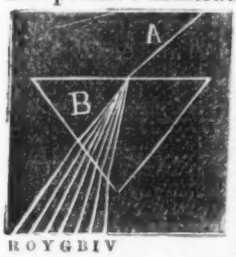
PHILADELPHIA, PENN.

BY SPECIAL ARRANGEMENT WITH THE AUTHOR.

[*Entered according to Act of Congress, in the year* 1856, *by L. L. CHAPMAN, in the Clerk's Office of the District Court, for the Eastern District of Pennsylvania.*]

THEORY SIMPLIFIED.

THE NATURAL LAWS which control the changes of the Elements have their simple and positive illustration in the Solar Spectrum—as follows:



ROYGBIV

A beam of light (A) falling obliquely upon a prism (B) or any three-square block of glass, will be divided by the refracting power of the prism, diverging into *seven* distinct and different angles of direction, (R, O, Y, G, B, V, I,) and in *each angle*, the light will assume a color of the Rainbow, and possess a nature, and produce an effect *different* from the light refracted in the *other* angles. The light diverged in the angles of the Violet, Indigo, (V, I,) etc., producing a *cool, damp* temperature, and (when converged) magnetizing bits of wire, etc., in less than an hour, whilst that diverged in the angles of the Yellow, Red, (Y, R,) etc., produces a *warm, dry* temperature, with *little or no* perceptible magnetic power.

The Rainbow gives a similar illustration by the reflection of light.

These facts have been established by the scientific world for centuries. But the *display* given on a small scale in the above illustration of the laws which regulate the changes of the elements, has been hitherto *overlooked.* For the currents of light that the earth is constantly intercepting from the other bodies of the Solar System, (some of which are a thousand times its bulk,) in *every* differing angle of reflection, can not fail to produce in its elements similar effects on a *large* scale to those produced by single rays in the *same* angles on a *small* scale, as seen in the above illustration. It will also be seen, from the mathematical exactness of the laws of light, that the *periods when* these reflected currents will be intercepted, admit of precalculation in the *same manner* as eclipses, and that their tendencies and effects may be inferred to an important extent beforehand.

I have found during some ten years' observation, that Electrical phenomena—Storms—Earthquakes, etc., have usually occurred at periods when excessive supplies of electricity by many intercepted currents were indicated. Also, that sickness—Cholera—vegetable defection, or blight, etc., usually prevail, when great and long-continued deficiency, in consequence of fewer intercepted currents of Electrical supplies to the Elements are indicated.

The changes of Atmospheric temperature, I have usually found to correspond to within the hour, with intercepted currents, as precalculated, according to the analogy of the solar spectrum, three or four times out of five.

These Precalculations, if we understand Dr. Chapman rightly, are founded on observations of electrical currents, from the heavenly bodies passing through space, and intercepted by the earth. Dr. Chapman regards light as nothing else than electricity, made manifest by passing through a transparent medium. Now, as the laws which govern the passage of light are definite, fixed and well understood, he supposes it to be possible to precalculate the position, much as eclipses are precalculated, in which the earth will be at any given time future, with regard to electrical influences, so as to foretell storms, cold, heat, winds, hurricanes, and generally those conditions in which our spirits will be buoyant or depressed, and in which health or sickness will prevail.

That he has published wonderful precalculations, as for instance the cholera at St. Jago, foretelling long beforehand almost the exact hour when that terrible visitation began its ravages, and when it suddenly ceased, is matter of history. We have long

believed the science of meteorology to be of vast importance to mankind. If Dr. Chapman, by his patient investigations and his discoveries, has placed this science on its true basis, he has done a great thing for the race. We do not affirm that he has. That is more than we know. But if he shall accomplish half, or even a tenth part of what he enthusiastically hopes, in the way of helping mankind to foreknow the condition of the elements, that by sea and by land, in health and in sickness, they demean themselves accordingly, he will deserve to be enrolled among earth's greatest benefactors.

We do not understand that Dr. C. claims to have yet perfected the science to which his investigations lead. These precalculations are immensely laborious, some single problems requiring the close study of a week. In the precalculations below for the weather in November, 1857, let not the reader understand that he vouches for their exact fulfillment. What he claims, is that he has made discoveries which constitute the basis of a new science; and that this science when better understood, will enable the meteorologist to foretell the weather and its influences on the business and the health of mankind, with about the same certainty with which the astronomer foretells eclipses.

The reader, therefore, must not be disappointed if the precalculations below are not verified to the moment. If the predictions should be verified in three or four cases out of five, it should be regarded as satisfactory, because if he shall appear to be correct in only a majority of cases, it would sufficiently show he has a clue unknown to the rest of us, and afford a hope that when he and others shall have pushed these investigations further, certainty or something nearly approximating to it, will be attained in these precalculations of atmospheric conditions, affecting the great interests, agriculture, navigation, sanitary measures, etc., etc.

We bespeak for Dr. C. a candid comparison, on the part of our readers, of his precalculations with their versification or their failure, as the case may be. Read his explanations, see that you understand him, and then make great allowance for the newness of the science on which his predictions are based.

The way to treat those men who are struggling to enlarge the the boundaries of human knowledge, for the general good, is not as the world treated John Fitch and Robert Fulton, scouting the first into his grave, and withholding all honor from the second, till a brilliant success crowned his efforts, and gave us the incalculable blessing of steam navigation.

We suppose it will be understood that by R. O. Y. G. B. I. and V. are intended the Red, Orange, Yellow, Green, Blue, Indigo and Violet rays of light.

FIRST DEPARTMENT.

EXPLANATORY.

VISION, (*instead of being a faculty possessed and exerted at will on distant objects,*) is simply a sense of feeling excited on the nerves of the eye by currents of electricity, radiated or reflected *from the object seen.* Hence, light is idendical with *electricity,* which, hence, instead of being confined to *our earth,* is the common property of the *solar system.*

The angles of incidence and reflection are *Positive* and *Negative* angles, inducing (with other causes) a successive series of *positive and negative conditions* of the atmosphere and elements.

THE TERM POSITIVE is here given to conditions abounding *more* with *vital electricity,* inspiring *more* health, vigor, cheerfulness, and *better* feelings for business intercourse, etc., and consequently, *greater success, enjoyment, etc.*

THE TERM NEGATIVE is given to those conditions which *abound less* with electricity, and consequently *are more unfavorable* to health, feelings, business, social intercourse, etc.

¶ Indicates Sundays.

ELEVENTH MONTH, (November.)

Tendency. *Time o'clock.*

1st, ¶ Negative, from 1 morn 2 to 8 eve.

2d, Mixed, from 1 to 8 morn.
Positive, from 9 morn to 12 eve.
3d, Mixed, from 2 morn to 12 eve.
4th, Negative from 2 morn to 12 eve.
5th, Negative, from 1 to 9 morn.
Positive, from 10 morn to 12 eve.
6th, Mixed, from 1 to 8 morn.
Positive, from 9 morn to 12 eve.
7th, Positive, from 1 morn to 7 eve.
8th, ¶ Mixed, from 1 morn 2 to 12 eve.
9th, Negative, from 1 to 8 morn.
Positive, from 8 morn to 12 eve.
Negative, from 1 to 11 eve.
10th, Mixed, from 1 morn to 1 eve.
Positive, from 1 to 12 eve.
11th, Negative, from 1 morn to 2 eve.
Positive, from 3 to 12 eve.
12th, Positive, from 8 morn to 6 eve.
13th, Positive, from 1 morn to 12 eve.
14th, Mixed, from 3 morn to 12 eve.
15th, ¶ Negative, from 1 morn to 4 eve.
Positive, from 5 to 12 eve.
16th, Negative, from 7 morn to 5 eve.
Positive, from 6 to 12 eve.
17th, Positive, from 1 morn to 12 eve.
18th, Mixed, from 1 morn to 10 eve.
19th, Negative, from 4 morn to 3 eve.
Positive, from 4 to 10 eve.
20th, Positive, from 4 to 9 morn.
Negative, from 10 morn to 6 eve.
21st, Mixed, from 1 to 7 morn.
Positive, from 8 morn to 12 eve.
22d, ¶ Zodiacal period ends at 3 morn.
Positive, from 1 to 6 morn.
Negative, from 7 morn to 3 eve.
Positive, from 3 to 11 eve.
23d, Negative, from 1 morn to 1 eve.
Positive, from 3 to 12 eve.
24th, Mixed, from 1 morn to 12 eve.
25th, Mixed, from 1 to 7 morn.
Positive, from 8 morn to 7 eve.
26th, Negative, from 1 to 7 morn.
Positive, from 8 morn to 8 eve.
27th, Negative, from 3 morn to 12 eve.
28th, Negative, from 1 morn to 2 eve.
Positive, from 3 to 12 eve.
29th, ¶ Negative, from 5 morn to 5 eve.
Positive, from 6 to 12 eve.
30th, Positive, 1 morn to 12 noon.
Negative, from 12 noon to 12 eve.

SECOND DEPARTMENT.

EXPLANATORY.

THE CAPITAL LETTERS after morn, eve, are the initials of the colored rays, showing the angle of the solar spectrum in which the current of reflected light which produces the change is intercepted.

CURRENTS intercepted in the angles of the Y, or R, or G, rays, usually tend to a warm, dry temperature; V, or I, to cool and damp; B, and often V, to electrical, and usually more or less wind stirring; O, to variable, but in most cases to damp. *Periods* in the place of letters show currents under investigation. *Double letters*, or periods, show combined currents, operating *longer* and with *greater force.—See General Remarks.*

COMMAS (,) after the letters show positive, apostrophes, (") negative currents. *See First Department.* One comma or apostrophe shows *weaker*, two commas or apostrophes („ ") *stronger* currents. *Hyphens* (-) show confluent currents.

The changes are four minutes *earlier* for each degree of longitude (60 miles) west. Difference of latitude in the same meridian is immaterial. The dry conditions are fair, and the damp conditions cloudy or wet, at least *three or four times out of five* in the average. *When fair*, the damp conditions diffuse *a cool, damp* sensation through the atmosphere.

Blanks indicate very weak, or mixed, or uncertain conditions.

¶ *Indicates Sundays.*

ELEVENTH MONTH, (November.)

1st, ¶ At 1 morn, B" windy.
At 2 morn, I" cool, damp.
At 3 eve, O' ——
At 8 eve, Y" warm, dry.
2d, At 8 morn, GV' cool.
At 9 morn, G, warm.
At 1 eve, YI, cool, damp.
At 3 eve, O„ ——
At 12 eve, V- cool, damp.
3d, At 1 morn, G' warm.
At 2 morn, I„ cool, damp.
At 9 eve, B, wind stirring.
At 11 eve, YR" warm, dry.
4th, At 2 morn, G„ warm.
At 3 morn. .. windy.
At 10 morn, B' ——
At 5 eve, O" damp.
At 9 eve, R' warm, dry.
5th, At 9 morn, V' cool, damp.
At 1 eve, B„ wind stirring.
At 10 eve, R„ warm, dry.
At 12 eve, O, ——
6th, At 4 morn, Y„ warm, dry.
At 8 morn, G" warm, dry.
At 2 eve. ——
At 6 eve, R, warm, dry.
At 9 eve, O„ damp.
7th, At 4 morn, I- cool, damp.
At 7 eve, G, warm, dry.
At 10 eve, B" wind stirring.
8th, ¶ At 3 morn, OR' windy.
At 10 morn, V, cool.
At 11 morn, Y" warm, dry.
At 3 eve, BR" windy.
At 5 eve, BI, damp, windy.
9th, At 8 morn, V" cool, damp.

At 12 noon, B, wind stirring.
At 11 eve, G' warm.
10th, At 7 morn, R,, warm, dry.
At 1 eve, I' cool.
At 2 eve, B,, wind stirring.
At 12 eve, Y,, warm, dry.
11th, At 2 eve, R, warm, dry.
At 4 eve, V,, cool, damp.
At 5 eve, O,, ——
At 6 eve, I,, cool, damp.
At 7 eve, B' ——
12th, At 2 morn, .. warm.
At 3 morn, OV,, damp, windy.
At 7 morn, Y' warm.
At 8 morn, R, warm, dry.
At 6 eve, I, cool, damp.
At 11 eve, V' cool.
13th, At 8 morn, OI,, cool, damp, windy.
At 2 eve, .. warm.
At 5 eve, V, cool, damp.
14th, At 3 morn, G- warm, dry.
At 6 morn, I" cool, damp.
At 6 eve, .. warm.
15th, ¶ At 5 morn, R" warm, dry.
At 12 noon, GI" cool, damp, windy.
At 4 eve, O' ——
16th, At 7 morn, B- wind stirring.
At 5 eve, V" cool.
At 7 eve, I,, cool, damp.
At 8 eve, Y- warm.
At 11 eve, O,, damp.
17th, At 10 eve, GO, damp.
18th, At 2 morn, I' cool.
At 6 morn, R, warm, dry.
At 9 morn, YI" windy.
At 3 eve, " warm.
At 8 eve, I, cool.
At 10 eve, R' warm, dry.
19th, At 1 morn, YB- windy.
At 4 morn, OR, warm.
At 7 morn, BV" cool, damp, windy.
At 3 eve, O" ——
At 5 eve, V, cool.
At 6 eve, G, warm.
At 10 eve, BI,, cool, windy.
20th, At 1 morn, " warm.
At 4 morn, R,, warm, dry.
At 9 morn, YI,, cool, damp, windy.
At 12 noon, V' cool.
At 6 eve, B' wind stirring.
At 8 eve, G, weak.
21st, At 3 morn, · ——
At 5 eve, V,, cool.
At 7 eve, I" cool.
At 10 eve, Y,, warm, dry.
22d, ¶ At 2 morn, B,, wind stirring.
At 3 morn, end of the zodiacal period, or natural month.
At 6 morn, O,, ——
At 12 noon, G" warm.
At 3 eve, R" warm, dry.
At 11 eve, Y, warm.
23d, At 12 noon, O' ——
At 1 eve, GR" warm, dry.
At 12 eve, R, warm.
24th, At 2 morn, BO,, windy.
At 3 morn, V" cool, damp.
At 5 morn, O, ——
At 12 noon, Y" warm, dry.
At 3 eve, I, cool.
At 7 eve, B" wind stirring.
At 10 eve, R,, warm, dry.
25th, At 2 morn, G,, warm, dry.
At 7 morn, I' cool, damp.
At 10 morn, V, cool.
At 7 eve, . ——
26th, At 2 morn, R' warm.
At 7 morn, G' warm.
At 8 morn, V" cool.
At 9 morn, I,, cool, damp.
At 8 eve, Y,, warm, dry.
At 10 eve, O" ——
27th, At 2 morn, B,, wind stirring.
At 6 morn, V' cool.
28th, At 2 morn, Y' warm, dry.
At 1 eve, I" cool, damp.
At 5 eve, Y, warm, dry.
At 10 eve, B, ——
29th, ¶ At 4 morn, R- warm, dry.
At 5 eve, G" warm, dry.
At 6 eve, I, cool, damp.
30th, At 7 morn, YO,, windy.
At 10 morn, V., cool.
At 12 noon, I,, cool, damp.
At 1 eve, BI' cool, damp, windy.

GENERAL REMARKS. (*See First Department.*)

Longer, or more prominent cool periods usually occur near combined currents, ending with V, or I, especially where the first letter is Y, as near October 28th, November 19th, or 20th.

Warm Periods usually occur near combined currents ending with R, or G, especially where the first letter is Y.

Windy, or Cloudy, or Stormy Periods, or Gusts, usually occur near combined currents which end with B, V, I, or O, in the table, as near October 23d, or 24th, 28th, November 2d, 8th, 12th or 13th, 15th, 19th or 20th, 24th, 29th.

Positive Atmospheric Conditions, or periods more prominently favorable to the general health, to the humors of the sensitive, to business, feelings, etc., near (mostly preceding for hours, sometimes days) those combined currents in the table, which are followed by commas (, ,,)

Negative Atmospheric Conditions, or periods more prominently unfavorable to

the general health, the humors of the sensitive, to business and social feelings, etc., near (mostly preceding for hours, sometimes days) those combined currents which are followed by apostrophes (' ") in the table, as near October 23d, 24th, November 2d, 3d, 8th, 15th, 18th, 19th, 23d, 29th.

Habits and attachments are easier to break—infants to wean, etc., in consequence of existing physical conditions affecting the mind, from October 23d to 27th, November 17th to 25th. Harder from October 30th to November 12th.

Periods of Greater Electrical Efficiency, such as predispose more to vegetable defection or *blight*, to the Cholera, etc., November 1st to 10th.

All the combined currents predispose more to electrical disturbances, earthquakes, auroras, etc.

Natural tendency of the zodiacal period from October 23d to November 22d, *damp* —23 to 30th, *dry*.

Domestic.

How to Cook Potatoes.

A writer in the domestic department of the *Ohio Farmer*, some good housekeeper we *guess*, gives the following recipes for cooking potatoes. When we go there, may the potatoes for breakfast be cooked in the first way, and those for dinner in the second:

Potatoes Fried in Slices.—Peel large potatoes, slice them about a quarter of an inch thick, or cut them into shavings, as you would peel a lemon; dry them well in a clean cloth, and fry them in lard or dripping. Take care that the fat and frying-pan are quite clean; put it on a quick fire, and as soon as the lard boils, and is still, put in the slices of potato, and keep moving them until they are crisp; take them up, and lay them to drain on a sieve. Send them to table with a little salt sprinkled over them.

To Boil Potatoes.—Put them into a sauce-pan, with scarcely sufficient water to cover them. Directly as the skins begin to break, lift them from the fire, and as rapidly as possible pour off every drop of the water. Then place a coarse (we need not say a clean) towel over them, and return them to the fire again until they are thoroughly done and quite dry. A little salt, to taste, should have been added to the water before boiling.

Internal Beauty.

"Handsome is that handsome does," is an old adage with truth in it. A boy, who was riding down hill on his sled, last winter, in the street, ran into a lady's dress. Springing to his feet, he expressed regret at the accident, when the lady kindly remarked, "There's no great harm done, my boy; you feel worse about it than I do."

"But your dress is ruined," said the lad. "I thought you would be very angry."

"Better have a spoiled dress than a ruffled temper," the lady replied; and as she passed on, the boy exclaimed to his companions, "Isn't she a beauty?"

"Call her a beauty?" said one of them; "she's more than forty, and has got wrinkles!"

"I don't care for that," retorted the lad; "her *soul* is handsome, any how!"

Such beauty is within every one's reach. Bad temper, too, generally disfigures the outward as well as the inward face.

Will the ladies, the boys and girls, and every body else think of this. It is so! Bad temper, petulence, ill will, every unamiable feeling indulged, hurts the face as well as the heart; kind, loving, amiable feelings, not only make people look beautiful to us, but actually go far to make them really beautiful; a heart devising good acts, while the hands execute them, makes the face and the whole form a little handsomer, while it secures for us a favorable judgment from others, and makes us look

a great deal better in the eyes of our friends. What kind hearted mother is not pretty to her children. Though as homely as an untrimed hedge-fence, they would think her handsome, if no one told them to the contrary. Their eyes are deceived by a blaze of inward goodness. Happy deception! Let the homely avail themselves of it; let the handsome consider how short lived is all beauty not emanating from goodness; and so all may be handsome, if they will.—Ed.

A Good Word for the Ladies.

Some of the papers are lecturing women upon extravagance in dress, and advising them to retrench, especially during the present financial difficulty. Doubtless there are many cases of unwarrantable extravagance in this way; but do people ever consider that two or three glasses of brandy and half a dozen regalias indulged in daily by a man, to say nothing of five and ten dollar dinners, amount to more in a year than would be required to dress a woman up to the full requirements of fashion? Much of this talk about the extravagance of women is nonsense. They are almost universally careful, and many a trader would to-day have been safe and sound if he had listened to the prudent counsels of his wife, rather than the reckless promptings of his own ambition. It is natural for men to endeavor to shift the responsibility of their folly to other shoulders, but it is rather too much to charge a commercial revulsion like this upon one's wife and daughter.—*Tribune.*

True, true, we must not make the ladies responsible for our own wrong doings. We do not believe the wives and daughters of our readers—the sensible farmers and mechanics—the only real producers, are much in fault for these hard times, but the ladies of uppertendom, and their flunkey imitators, have contributed largely to the present distress. There is no getting away from it.

Preserving Butter.

The farmers of Aberdeen, Scotland, are said to practice the following method for curing their butter, which gives it a superiority over that of their neighbors:

Take two quarts of the best common salt, one ounce of sugar, and one of saltpetre; take one ounce of this composition for one pound of butter; work it well into the mass, and close it up for use. The butter cured with this mixture appears of rich and marrowy substances, and fine color, acquires a brittle hardness, nor tastes. Dr. Anderson says:

"I have eaten butter cured with the above composition, that has been kept for four years, and it was as sweet as at first."

It must be noted, however, that butter that is thus cured requires to stand three weeks or a month before it is used. If it is sooner opened, the salt is not sufficiently blended with it, and sometimes the coolness of the nitre will be perceived, which totally disappears afterward.

The above is worthy the attention of every dairy-woman.

The Honeysuckles.

Of these there are several varieties, possessing various excellencies. Where the climate will permit its cultivation, nothing can be finer than the Japan or Chinese twining, but for northern gardens, it is too tender. The best plants of this family, all things considered, are the scarlet and yellow trumpet honeysuckles. They are hardy, are not infested with insects, grow fast, and bloom all summer.—*Minnesota Free Press.*

Grasshoppers and Mormons.

Some eastern philosopher has come to the conclusion that the grasshoppers which have troubled us for a year or so past, are natives of Utah and Minnesota.

So far as the first part is concerned, we believe it. At any rate, whether natives or not, they are *regular Mormons*, and the way they go in for *polygamy* and multiplication, is proof positive that they practice the doctrines of Mormonism whether they are recognized by the "Saints" as brethren or not! The desolation left in their wake, is a very good representation of the moral desolation caused by Mormonism wherever it prevails.—*Minnesota Free Press.*

Children's Page.

CHILDREN in years and knowledge young,
Your parents hope, your parents joy,

Here we are with you again; and do not think by the lines from the good old children's friend, that we suppose you know but little. We hope you know much, and are learning more. Is it so?

The other line is very true. You are indeed you parents hope and joy. They love you; they rejoice in your welfare; they desire your happiness; they will cling to you with fond affection, will grant your requests when they see it would be well for you, and deny them only when they think it would injure you. Now then, how should you feel and act towards them? Think of that, and you can answer just as well as we could—perhaps better.

But now we want to talk of other things; for we will not give you a discourse all on one subject this time. First of ourself. That is a favorite subject with some people, but we will be brief on this point. How do you think uncle John looks? Why, we are tall, rather shad-faced, have thin hair and a long beard, beginning to be gray. You would be afraid of us at first sight, but would soon find that we are one of those mortals that do not hurt anybody. We have got into our head a sort of an inveterate *notion*, that it is best to use everybody well, if they use us well, and if they don't. But come and see us, if your parents ever bring you to New-York.

We know just how you look, for we see you, or at least we think we do, and that answers our purpose very well. In order to prove that we see you, we will undertake to tell how you look and what you are doing now while we write, and if we tell wrong, you need not believe what we say hereafter. It is now the 28th of Oct., 9 o'clock in the morning.

There is in our family circle, among the readers of our children's page, a little flaxen-headed girl, of twelve years, with a thin face, dark blue eyes, nose inclined to the Grecian, hair straight, and half way between red and auburn, lips moderately thin, and but slightly rolled, teeth white and always clean, and whole expression intellectual, a girl, you would say, of a good deal of spirit, and yet there is something in her expression, which seems to indicate that a temper, naturally a little too high for comfort, is in process of subjugation to reason and good sense. Her manner is animated, lively, cheerful, but seldom extravagant. We said it is 9 o'clock. This little girl has been up two hours, has helped her mother considerably, had a merry chat with her father, while he was waiting a few moments for his breakfast, a pretty hearty romp with her brothers, and now, after the breakfast table is cleared off, has sat down to read awhile. She is reading the story of a good woman, whose husband was dead, her children making a good living for themselves, and leaving her much time and abundant means to look after the poor and alleviate their sufferings. Now her countenance brightens with new animation. She is thinking what she can do to relieve distress. You would almost know by her look that she is thinking a good thought, that some kind design is being formed within. It is the soul—the generous or the selfish purposes it chooses, that gives expression to the face. Ah, yes, kind intentions in the heart make one beautiful. Foul purposes give an ugly look. Now she rises, lays aside her book, runs to her mother, and asks if she may not take a loaf of bread and some of the meat that was left this morning, and carry it down to Mrs. A., under the hill, who is too feeble to go out washing, as she used to do, and whose children are sick, and they are very poor. Her mother

consents, and off she goes, and her countenance beams with pleasure as she thinks how glad Mrs. A. and the children will be. The very angels would be in love with Annette, if they should meet her in this little, unpretending mission she has devised. Oh, yes, it is a kind heart, that makes a pleasant face.

There is another little girl among our readers, though it is probable she will not be long, for we rather think our ideas will not please her. She is round faced, plump, fair, with dark hair and eyes, and a fresh countenance, much handsomer, as almost everybody would say, than Annette. At 9 o'clock, Jane is just up. Her mother has just explained to her that she whishes to go and visit a friend in a neighboring town and wants her to stay at home this day and evening. But Jane has had an invitation to a party. Her mother has offered to take her to the city next week, if she will stay at home to-day. But Jane is hard to be pleased. She wants to go to the party this evening, and to go to the city next week too, and she means to have her way in both. She has been crying and has spoken crossly to her mother. From the woe-be-gone expression of her face, you would think she had lost all her friends, and never meant to smile again. But look, a sudden change comes over her. She affects to submit, very pleasantly, but it is not sincere;—she has formed the purpose to deceive her mother. She tells her, Oh, yes, you may go, and I will stay at home. But in her heart, she means to go to the party, and to bribe Bridget, the maid, not to expose her. Now, if a little girl would deceive her mother, and draw the servant girl into a falsehood to conceal it, and then should do such things habitually, what would be the consequence? Her mother would love her, for mothers love always, but would be grieved at her conduct; and very likely all others would secretly despise her. Selfishness and a lack of sincerity are not remarkably amiable qualities; at least the world does not so regard them, and it only tolerates, but does not love those who are selfish and insincere. Sooner or later they will show these traits in the face. The workings of the heart go very far to make the expression of the countenance beautiful or ugly.

If our portraits fit none of the children who read this page, you may set us down as mistaken when we think we see you; but if they fit any, you must admit that we see you through our long spectacles, and know pretty much what you are doing.

We have taken off two of the girls this month. Next month we will see if we can hit some of the boys.

Composition.

It is worth a great deal to be able to express one's thoughts easily and naturally on paper. By practice only can it be acquired. What child of ten or twelve years old will send us an item now and then for our children's page, on the condition that we may publish it or not, as we think best, and may alter a word or two if we think that would make it better? You may send a riddle, a conundrum, a charade, or something of that sort if you choose; but we would rather have your thoughts on a subject of some consequence. If your mother or an older sister should help you a little, we warrant the composition would be none the worse, but it would be better for you to depend on yourselves. By the way, the mothers and the elder sisters should write something for our miscellaneous department, on their own account. Just tell them so from us. And the older sons, too, can occasionally give us an article that would increase the interest and usefulness of our Magazine. Only, let no one be disheartened by finding that his article does not appear. If a young man can get one article in three inserted in a journal of the character of this, he should take courage, and believe that with perseverance he will make an excellent writer. What do the farmers and mechanics' sons say to this? Will they try it?

Book Notices, etc.

THE FARMERS AND PLANTERS' ENCYCLOPÆDIA OF RURAL AFFAIRS; embracing all the most recent discoveries in Agricultural Chemistry; adapted to the comprehension of unscientific readers; illustrated by numerous engravings of Animals, Implements, and other subjects interesting to the Agriculturist. By Cuthbert W. Johnson, Esq., F. R. S. Adapted to the United States by Gouverneur Emerson.

This is a new work, just from the press of O. A. Moore, (till of late C. M. Saxton & Co.,) 140 Fulton street, New-York, of about 1200 pages, with almost countless engravings of a high order. On another occasion we shall give it an extended notice, as it deserves. What we have to say now is, that Cuthbert W. Johnson is one of the best, if not the very best, of English writers on agriculture, and that Dr. Emerson has fully *Americanized* this most valuable work—has made the American edition every whit as good for American farmers as the English edition is for English farmers, so that the fact of the basis of the work being foreign, is rather an advantage than otherwise, as Dr. Emerson has had every opportunity, and has well improved it, of adapting it to American wants and American readers. The amount of matter it contains is about equal to ten dollar volumes, embracing nearly every thing the agriculturist wants, and so arranged that the reader can easily turn to any subject at pleasure. The price is $4. For this sum it will be sent post-paid from this office, if any one chooses to order it through us instead of the publisher.

CHAPMAN'S PRINCIPIA, OR NATURE'S FIRST PRINCIPLES; a Theory of Universal Electro-Magnetism. By L. L. Chapman. Campbell & Co., Philadelphia, Publishers. 214 pages, 12mo.

This is a little book which we have read with great interest, believing that Mr. Chapman's Theory will prove of immense benefit, if it shall be confirmed; but whether it will, we are hardly able yet to form an opinion. See article on the weather for November.

THE ATLANTIC MONTHLY, devoted to Literature, Art and Politics. November, 1857. Boston: Phillips, Sampson & Co. London: Trübner & Co. Number 1.

The first number of this new monthly has been laid, in advance, upon our table. It certainly promises well for the future, both for "true scholarship and culture," as well as for more sparkling and lively qualities. It has in its lists of contributors the very best names in the country. The articles of this number show various excellencies of a high character, and among the more prominent of these we would refer specially to a fine sketch of Douglass Jerrold, which is introductory only; Florentine Mosaics, a sketch of several of the famous European churches and pictures, etc.; Sally Parson's Duty, a very funny story of a very "curious" Yankee family; The Manchester Exhibition, an admirable criticism of this famous gallery, and one which savors strongly of Ruskin; The Autocrat of the Breakfast Table, or every one his own Boswell; British India, etc. All these are excellent of their class. We bid this new comer God's speed. It will be for sale by booksellers and periodical dealers in all cities and large villages. Price $3 a year.

ILLUSTRATED ANNUAL REGISTER OF RURAL AFFAIRS, for 1855–'6–'7, with 440 engravings. Vol. 1.

ILLUSTRATED ANNUAL REGISTER, etc., for 1858, with 130 engravings. Albany: Luther, Tucker & Son. 1858. Price 25 cents.

These two little volumes are admirable compilations, in a very condensed form,

of a thousand things that every farmer and gardener ought to know. The selection of topics is made with great judgment, and the work is executed with remarkable taste. Every man who owns or cultivates even a garden, would find much that is useful to him on these pages. The Register of each year contains new matter, without repetition. Both are for sale by A. O. Moore, of this city.

DINSMORE'S AMERICAN RAILROAD AND STEAM NAVIGATION GUIDE, for the United States, Canada, etc.

Dinsmore & Co., 9 Spruce street, have made valuable improvements upon what was good before. This little book now contains all that a traveler can ask for, short of a bound volume of Gazetteer and History combined. Indeed he gets even this, in a good measure, in this small compass. Price 25 cents.

Editor's Table.

FOR THE AMERICAN FARMERS' MAGAZINE.

MESSRS. EDS. P. L. & A.:—Will you be kind enough to give me, through your valuable Magazine, the *Plough, Loom and Anvil*, a few statistics about dairy farming, and answer some questions on that subject, namely:

1. Would a dairy be reasonably profitable on ordinary farms in the neighborhood of Rahway and Elizabeth, New-Jersey?

2. What number of cattle could be kept in that part of the country on, say two hundred acres?

3. Which is the most remunerative, butter or cheese?

4. What cash capital would it require to stock such a farm with cattle, stables, cheese-presses, etc?

5. And what are the most approved arrangements for these latter?

By answering these questions, and giving any other information in your power touching this subject, you will greatly oblige a subscriber. If, however, you be not sufficiently "posted," you might perhaps be able to tell me in what works I could obtain the desired information, or perhaps some of your numerous readers would be kind enough to give their views on the subject.

Very respectfully, gentlemen, your obedient servant, WM. S.

Let not the brief and imperfect reply we here make to the above deter our correspondents nor any of our readers from answering them. Farmers, let us hear from you on these questions. It is not necessary that one should answer them all, and here let us say, there are rather too many questions for one batch, but as they are sensible ones, and somewhat strongly connected with each other, we find no fault. Let some farmer answer one of them, and another another, in our Dec. number, and they will be answered well, and if the answers clash with ours, no matter, provided they are sound, for we never supposed ourselves infallible, or wished others so to regard us.

1st Question. As a general rule, the interests of both city and country would be better subserved by using the land as near great cities as Elizabeth, for growing fruits and vegetables, and that more remote for dairy purposes. Whether a dairy business there would be profitable, would depend much upon the price of the land. If land there is as high as we suppose, it could hardly be very profitable after paying labor and other expenses, unless for the production of milk.

2. Two horses, twenty horned cattle, and forty sheep, if you feed on grass and hay only, simply letting the land to grow what grass it will without help; but from two to

five times that stock, if you grow and feed corn and roots largely, thereby making the land productive in proportion to the labor and skill expended on it.

3. In that location butter, feeding the refuse to swine, and thereby making abundance of roasters and fresh pork for this market, would in our opinion be more profitable than cheese. The sale of milk would probably be more profitable than either. But if you adopt this last suggestion, let us implore you for humanity's sake to give the living babies better milk than the poor dead ones got. That couldn't keep them alive. The milk cheating in this city kills more infants than the Hindu mothers sacrifice to all their gods.

4. If you want to start off in fancy style, like a Sparrowgrass, with plenty of money earned easier than by farming, it will require more capital than you will ever get back. But a moderate beginning and a cautious procedure would require less. If you are a wise man, and will look well to the probability of a pretty speedy return for your investments, you can use, as a working capital, just about half the value of your land to great advantage.

5. This question we will leave for others to answer. It is a capital subject for an experienced dairy farmer to write upon. May we hear from some such.

OTHER QUERIES.

R. N. asks:—"Why should the animal products of a farm be of at least equal value with the vegetable products?" We suppose, of course, he would except farms near large cities, and other farms specially adapted to a specific purpose, and confine the question to the general run of mixed farming. With this limitation, a very brief answer is: Because in no other way can you *profitably* keep a farm perpetually improving in fertility. Will some one give a fuller reply for our next. It is a good question in which to develop the true philosophy, aim and end of farming.

To J. A. E.:—Yes. If you cover your manure heaps, carried to the field in autumn, with soil three or four inches thick, it will pay for the labor. Exhalations that would otherwise go into the air, will be held by the soil thrown on, and this soil, by the 10th of May, will be so impregnated as to be half as fertilizing as the manure itself.

Among the curiosities worth visiting in this city is the establishment of Thos. Otis, LeRoy & Co., 261 and 263 Water St., for the manufacture of Lead Pipe, Sheet Lead, Drop Shot, Buck Shot, Balls, &c. The necessity of a high shot-tower is dispensed with, by forcing up through passages in which the melted lead descends a stream of cold air. In the drawing of the lead pipe, and in the making of pressed balls, very beautiful and ingenious machinery is used.

A correspondent, who has often given us a spicy little article from the east, but has now removed to the far west, promises us something from that section when he becomes sufficiently posted. He says, "Thus far I am pleased with this country, but I will endeavor not to be extravagant and lavish in my praise, a common fault with writers of this section." This is a capital idea. Be discriminate, and give us something of a practical nature, instructive to agricultural readers.

C. L. Brace's request shall be attended to in our next.

N. G.'s very excellent article, the more valuable for being written so plainly, that the printer can hardly mistake, was unfortunately mislaid till too late for this number. It will appear in our next. We here take occasion to say that N. G., from whom we hope to hear occasionally, is a practical farmer, and to renew our request that more such will favor us with the results of their experience.

J. R. B., also, will appear in our next number.

Mummy Wheat.—A Popular Error Exploded.

A few seeds of wheat, supposed to have been found in an Egyptian mummy, were some years ago, sown, and, having germinated and sprung up, led eventually to the name of mummy wheat being applied to it, as a distinct species. The circumstance led to an inquiry on the vitality of seeds in general; and a commission was appointed in England to experiment upon different kinds. A report has been made, which was brought before the British Association at its late meeting at Dublin. A register of the experiments that were made has been kept. From this, it would appear that the shortest period for which any of the seeds had retained their vitality was eight years, and the longest forty-three years. This statement at once dispels the illusion as to the mummy wheat; and most probably some substitution of other modern seeds had been made in these instances; for it was, moreover, stated at the meeting, on the discussion that took place after the reading of the report by Dr. Steele, that he had planted many seeds obtained from Egyptian mummies, but had always failed to obtain any indication of their vitality.

Not so fast, friend. It is quite possible, that there may have been a substitution of modern seed, and so the mummy wheat be all a humbug, for hardly anything is more common than humbugs these days.

It is quite possible also that 45 years is the longest that the vitality of any seeds can now be proved to have been preserved among the living.

But another thing is possible, and no mortal can disprove it, or satisfy a truly logical mind that it may not be a variety, viz.: that among the relicts of the dead, in the deep, dark catacombs of Egypt, where the temperature has hardly changed half a degree since the days of Sesostris, there may be seeds, which have changed as little as objects around, and are as vital to-day as they were 3,000 years ago.

If a seed has lain in a situation where the degree of warmth and dryness are always the same, and where the air has little or no access, it is not within the limits of human knowledge to say that its vitality may not be perfect at the end of 3,000 or that it will not be perfect at the end of 10,000, or 100,000 years, or even a longer period if you please.

Agricultural Department of the Government.

At the dinner table of an agricultural fair *down east*, Hon. C. C. Chaffee, of Springfield, Mass., recently said:

The agriculture of Massachusetts can be brought up to one hundred millions of dollars per year, and the farmers of Massachusetts owe it to themselves to see that it is done. Manufactures and commerce need but little aid; they are strong enough to go alone, but agriculture must make higher advances.* * * * *

Commerce, he said, requires its $17,000,000 to protect and foster it, but agriculture is left to care for itself. The speaker urged upon the farmers the necessity of bringing the subject of an agricultural department before Congress. This great interest of our country demanded a Cabinet Officer as much and more than any other industrial pursuit in the country. If the farmers will only consolidate in their efforts and persistently besiege Congress in this behalf, their prayer would be granted.

So mote it be. But the greatest thing that Congress can do for agriculture, is to aid by means clearly within its constitutional powers, the mechanical and manufacturing industry of the country. Give the farmer plenty of home customers. That is what he wants.

Drained vs. Wet Land.—Temperature.

In a recent report of a committee of the Royal Agricultural Society of England, upon an examination made in January last of the soil of R. Clutterbuck, Esq., of Hineworth, we find the following remark: That, whereas, the undrained land exhibited a temperature as low as thirty degrees at eighteen inches below the surface, the drained land never reached so low as the freezing point at the same depth, although the temperature of the air above was recorded at sixteen degrees below the freezing point.—*Moore's Rural New-Yorker.*

CLOTHING

FOR THE

MILLION AND THE MILLIONAIRE.

OVERCOATS	at	EVANS'
Overcoats	at	Evans'
Overcoats	at	Evans'
Overcoats	at	Evans

WILLIS' IMPROVED STUMP MACHINE.

PATENTED MARCH 6, 1855.

Farmers, Mechanics, Road-Builders, Speculators, and all progressive men, your attention is called to this valuable Patent.

My Stump Machine must go before the Mower and Reaper. It has no equal. It is simple in its construction, easily worked, and not liable to get out of repair. Its common weight is about 1500 lbs It is easily borne from place to place, and it can be loaded in three minutes, and unloaded, set up, and a lusty stump drawn, all within fifteen minutes. Once fastened, it will pull an acre and a half of stumps without changing anchorage. A single yoke of cattle, or one strong horse, is sufficient to work it. With such a team, if necessary, a power of from three to five hundred tons can be made to bear upon a single stump!

One man can work it, though two work it at better advantage. The time required to extract stumps from six inches to four feet in diameter will vary from two to ten minutes. With this Machine, standing trees may be taken out, and large rocks removed from their beds; and it is the best Machine ever invented, not only for pulling stumps, but for moving buildings, and other heavy bodies. All the iron used is wrought, of peculiar quality, imported, sustaining 57 tons to the inch!

The price of these Machines varies according to weight and size—the weight of the largest being about 1500 lbs. For the purpose of transportation, it can be boxed up, with the exception of the lever and wheels, in a box ten feet long and about fifteen inches square. I reside at Orange, Massachusetts, where I manufacture this article on a large scale, and hold myself ready to furnish it, or sell rights to use it, in any State or town in the Union, now unsold, on terms most reasonable.

This patent begins to be appreciated. All who wish to bring so good a thing into use, and thereby make a "pile of money," should come to Orange, see the inventor, see the workings of the Machine with their own eyes, and if not perfectly satisfied respecting its merits, all their expenses shall be cheerfully paid.

These Machines, properly boxed for transportation, are sold by NOURSE, MASON & Co., PARKER, WHITE & Co., and SCUDDER & Co., of Boston; and by R. L. ALLEN, 189 Water Street, New-York.

WILLIAM W. WILLIS.

REFERENCES.—Hon. SIMON BROWN, Editor *New-England Farmer;* J. A. NASH, Editor *Plough, Loom, and Anvil;* and Mr MOORE, Editor *Rural New-Yorker.*

PATENT AGENCY

AND

CHEMICAL LABORATORY,

AT

WASHINGTON, D. C.

DR. DANIEL BREED, late Assistant and acting Chief Examiner in the United States Patent Office, has established at Washington, D. C., a PATENT AGENCY in connection with a CHEMICAL LABORATORY. He will prepare papers and drawings, and make applications for Letters Patent in the United States and in Foreign Countries, and will give especial attention to chemical cases, and also to infringements, interferences, appeals, re-issues, and rejected applications.

Having long been familiar with the Library and Model Rooms of the Patent Office, to all of which he still has access, he possesses extraordinary facilities for making thorough examinations in regard to the patentability of inventions, being enabled also to search the standard works in German and French, and thus to give to inventors, and others, reliable information concerning inventions and the arts in Europe and America.

The Laboratory is intended chiefly for experiment and analysis, for the purpose of testing and improving processes of manufacture and apparatus employed in the Chemical Arts, as also for the purpose of procuring and defending Patent Rights. After many years devoted to Chemistry—having studied in the German Laboratories under Liebig and Lowig, DR. BREED feels confident in offering his services to Inventors and others interested in the chemical arts and manufactures, and to all who may require the services of a practical chemist.

Fees are most conveniently sent by mail, in drafts on New-York, Baltimore, Boston, or Philadelphia.

Models may be forwarded by Express, and all other business may be transacted by letter. Persons may also forward models and fees, and transact other business with Dr. Breed, through Messrs. Parish & Nash, editors of *The Plough, Loom, and Anvil.*

☞ Patents procured through this Office, will be noticed in the *Plough, Loom, and Anvil*, and full descriptions given therein, when desired, without charge.

June, tf.

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Inventors stuck with good inventions will be assisted, and Patents secured on shares.

N. B.—Persons wishing to secure Patents will please send for Circular.

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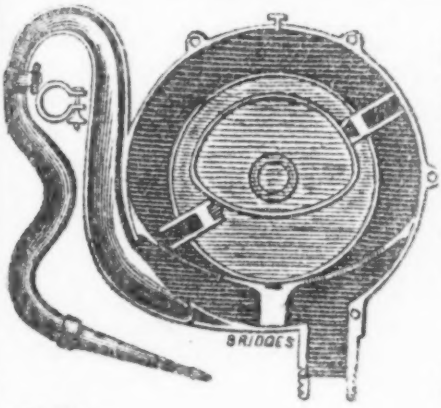
2

A. W. CARY'S ROTARY FIRE-ENGINE PUMPS.



THE Inventor, after thoroughly testing this engine pump, for the past two years, feels confident that it is not equalled by any thing now in market, in the way of raising or forcing water; the motion being rotary, the stream is constant, without the aid of an AIR vessel. The packing is self-adjusting, very durable, and can not well get out of order.

These pumps are well calculated for all the purposes for which pumps or hydrants may be used, viz., Factories, Steamboats, Tanneries, Breweries, Distilleries, Railroads, Water Stations, Hotels, Mines, Garden Engines, &c.

Among the many testimonials given of this pump, is a gold medal awarded at the last great Fair of the American Institute.

No. 1 is a house or well pump and domestic Fire Engine, and will raise from 20 to 30 gallons per minute.

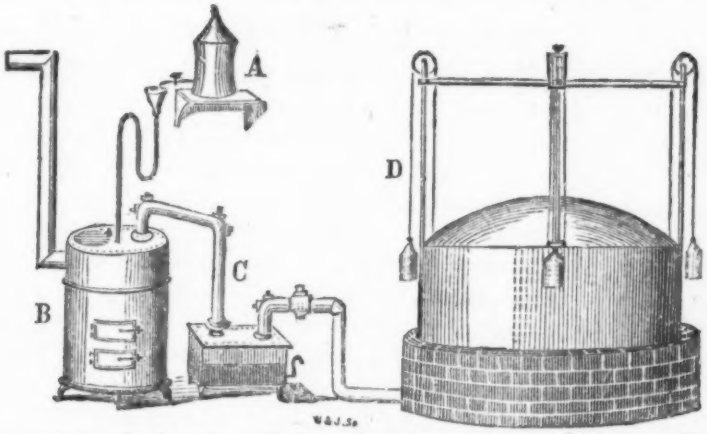
No. 2 will raise 100 gallons at 120 revolutions.

No. 2½ " 200 " 120 "

No. 3 " 300 " 120 "

The quantity raised can be doubled, by doubling the revolutions. These machines are manufactured and sold by the subscribers at Brockport, N. Y.; also in this city, 240 Broadway.

Sept. 18–1y. CARY & BRAINERD.



A, Tin Can, containing Rosin-Oil. B, Gas-Generator. C, Retort-Box. D, Gasometer

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BLAIR COUNTY, PA. Orders received for all kinds of

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BOOKS

ON AGRICULTURE, HORTICULTURE, AND THE MECHANIC ARTS, published by A. O. MOORE, 14 Fulton Street, New-York, late C. M. Saxton & Co.

If any of our readers find it more convenient, in their correspondence with this office, to order these books through us, we will forward promptly, post-paid, on receipt of the publisher's price. Below is a small list, which we will enlarge hereafter, of such books as we can heartily commend. Their entire list, with object and price stated, we will forward to order, on receipt of a stamp therefor. The following are among those which we regard as specially valuable:

Olcott's Sorgho and Imphee,	$1 00
Johnson's Elements of Agricultural Chemistry,	1 00
Pardee on the Strawberry,	60
Charlton's Grape-Growers' Guide,	60
Munn's Practical Land Drainer,	50

More next number.

Oct. 1st., 1857.—2t. J. A. NASH, M. P. PARISH, 7 Beekman Street, New-York.

ADVERTISING.

THE PLOUGH, LOOM, AND ANVIL is among the very best mediums for advertising Farms, Lands, Stock, Agricultural Machinery, Improved Implements, etc., etc., whatever interests the farmer, the horticulturist, and the mechanic. The uniform price is 10 cents a line for each insertion.

Farmers, Gardeners, Stock Growers, Manufacturers of Implements, Dealers in Supplies for or from the soil, send us your notices. Short ones are the best for you, because they cost less, and for us, because we want to put a great deal of the very information they contain before our readers. Bills returned shall in all cases be in strict accordance with the foregoing terms, which, considering the extent and character of our circulation, cannot fail to be satisfactory.

Or, if you prefer to inclose with the notice a bill of one, three, five, or ten dollars, and to say, "Give our business that worth of publicity," we will, in such cases, give as many insertions as the money pays for, and an extra insertion for the fraction, if there be one; as, for instance, if it pays for a given number of insertions, and partly for another, we will give the other without further charge.

Oct. 1st., 1857.—2t. J. A. NASH, M. P. PARISH, 7 Beekman Street, New-York.

BOUND VOLUMES.

As the *Plough, Loom, and Anvil* is not stereotyped, we cannot furnish back volumes at pleasure, but will forward such as we have, at prices annexed:

One Set, complete from the beginning, July, 1848, to July, 1857—9 vols.,	$25 00
Two Sets, complete from July, 1849 to July, 1857—8 vols.,	20 00
Several Sets, complete from July, 1850 to July, 1857—7 vols.,	16 00
" " " " July, 1851 to July, 1857—6 vols.,	13 00
Volumes not in sets, or parts of sets, as above, per volume,	2 00

This work, entire from its commencement in 1848, forms the most complete history extant o the condition and progress of Agriculture and the Mechanic Arts in our country. We regret that we have not plates from which the early volumes can be reproduced to order. But as we can furnish sets complete with the exception of one or a few of the past volumes, they will be quite as valuable, in proportion to the prices at which they are offered, as full sets would be.

Volumes for supplying orders to be freshly bound, uniformly in a strong and elegant library style, to be put up with every possible care for their safe conveyance, and forwarded by mail, or by express, at our expense.

If any should prefer to employ their own binder, (as they might then have a choice in the style of binding, and might, if they chose, make this work uniform with other portions of a library), we will forward the numbers, instead of the bound volumes, and at a discount from the above prices of 25 per cent off.

Oct. 1st., 1857.—2t. J. A. NASH, M. P. PARISH, 7 Beekman Street, New-York.

FAMILY

SEWING MACHINES,

GROVER & BAKER'S.

THE first place in public estimation is now justly accorded to the GROVER & BAKER MACHINE, for family sewing for the following reasons:

FIRST—It is MORE SIMPLE and EASILY KEPT IN ORDER than any other machine.

SECOND—It makes a seam which will not RIP or RAVEL, though every third stitch is cut.

THIRD—It sews from two ordinary spools, and thus all trouble of winding thread is avoided, while the same Machine can be adapted, at pleasure, by a mere change of spools, to all varieties of work.

FOURTH—The same Machine runs silk, linen thread, and common spool-cotton, with equal facility.

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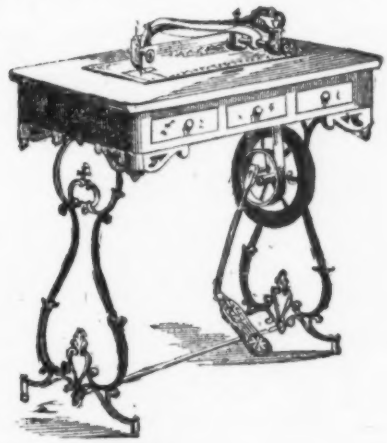

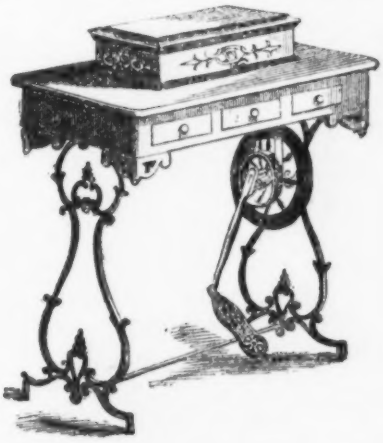

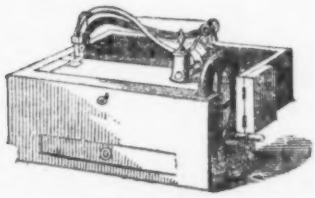

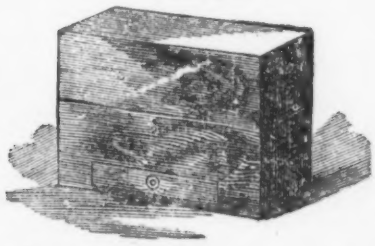

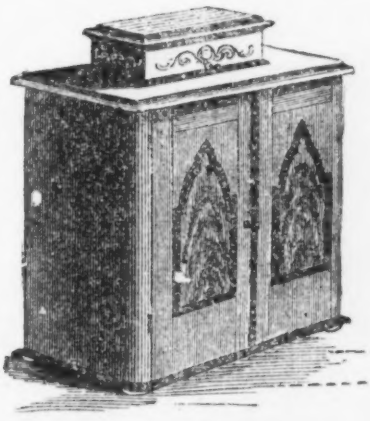

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